

# THE ARCHITECTS' JOURNAL



## standard contents

every issue does not necessarily contain all these contents, but they are the regular features which continually recur

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★ A glossary of abbreviations of Government Departments and Societies and Committees of all kinds, together with their full address and telephone numbers. The glossary is published in two parts—A to Ig one week, Ih to Z the next. In all cases where the town is not mentioned the word LONDON is implicit in the address.

AA	Architectural Association, 34/6, Bedford Square, W.C.1.	Museum 0974
AAI	Association of Art Institutions. Secy.: W. Marlborough Whitehead, "Dyneley," Castle Hill Avenue, Berkhamstead, Herts.	
ABS	Architects' Benevolent Society. 66, Portland Place, W.1.	Langham 5721
ABT	Association of Building Technicians. 1, Ashley Place, S.W.1.	Victoria 0447-8
ACGB	Arts Council of Great Britain. 4, St. James' Square, S.W.1.	Whitehall 9737
ADA	Aluminium Development Association. 33, Grosvenor Street, W.1.	Mayfair 7501/8
ArchSA	Architectural Students' Association. 34/36, Bedford Square, W.C.1.	
ARCUK	Architects' Registration Council. 68, Portland Place, W.1.	Langham 8738
BAE	Board of Architectural Education. 66, Portland Place, W.1.	Langham 5721
BATC	Building Apprenticeship and Training Council. Lambeth Bridge House, S.E.1.	Reliance 7611, Ext. 1706
BC	Building Centre. 26, Store Street, Tottenham Court Road, W.C.1.	Museum 5400
BCC	British Colour Council. 13, Portman Square, W.1.	Welbeck 4185
BCCF	British Cast Concrete Federation. 105, Uxbridge Road, Ealing, W.5.	Ealing 9621
BCIRA	British Cast Iron Research Association. Alvechurch, Birmingham.	Redditch 716
BDA	British Door Association. 10, The Boltons, S.W.10.	Fremantle 8494
BEDA	British Electrical Development Association. 2, Savoy Hill, W.C.2.	Temple Bar 9434
BIA	British Ironfounders' Association. 145, Vincent Street, Glasgow, C.2.	Glasgow Central 2891
BID	Building Industries Distributors. 52, High Holborn, W.C.1.	Chancery 7772
BINC	Building Industries National Council. 11, Weymouth Street, W.1.	Langham 2785
BOT	Board of Trade. Whitehall Gardens, Horseguards Avenue, Whitehall, S.W.1.	Trafalgar 8855
BRS	Building Research Station. Bucknalls Lane, Watford	Garston 2246
BSA	Building Societies Association. 14, Park Street, W.1.	Mayfair 0515
BSI	British Standards Institution. British Standards House, 2, Park St., W.1.	Mayfair 9000
BTE	Building Trades Exhibition. 32, Millbank, S.W.1.	Tate Gallery 8134
CABAS	City and Borough Architects Society. C/o Johnson Blackett, F.R.I.B.A., Civic Centre, Newport, Mon.	Newport 65491
CAS	County Architects' Society. C/o F. R. Steele, F.R.I.B.A., County Hall, Chichester.	Chichester 3001
CCA	Cement and Concrete Association. 52, Grosvenor Gardens, S.W.1.	Sloane 5255
CCP	Council for Codes of Practice. Lambeth Bridge House, S.E.1.	Reliance 7611 Ext. 1284
CDA	Copper Development Association. Kendals Hall, Radlett, Herts.	Radlett 5616
CIAM	Congrès Internationaux d'Architecture Moderne. Dolderal, 7, Zurich, Switzerland.	
COID	Council of Industrial Design. 28, Haymarket, S.W.1.	Trafalgar 8000
CPRE	Council for the Preservation of Rural England. 4, Hobart Place, S.W.1.	Sloane 4280
CUC	Coal Utilization Council. 3, Upper Belgrave Street, S.W.1.	Sloane 9116
CVE	Council for Visual Education. 13, Suffolk Street, Haymarket, S.W.1.	Reading 72255
DGW	Directorate General of Works, Ministry of Works, Lambeth Bridge House, S.E.1.	Reliance 7611
DIA	Design and Industries Association. 13, Suffolk Street, S.W.1.	Whitehall 0540
DPT	Department of Overseas Trade. Horseguards Avenue, Whitehall, S.W.1.	Trafalgar 8855
EJMA	English Joinery Manufacturers' Association (Incorporated). Sackville House, 40, Piccadilly, W.1.	Regent 4448
EPNS	English Place-Name Society. 7, Selwyn Gardens, Cambridge.	
FAS	Faculty of Architects and Surveyors. 68, Gloucester Place, W.1.	Welbeck 9966
FASS	Federation of Association of Specialists and Sub-Contractors, Artillery House, Artillery Row, S.W.1.	Abbey 7232
FBBDO	Fibre Building Board Development Organization, Ltd. 47, Princes Gate, Kensington, S.W.7.	Kensington 4577
FBI	Federation of British Industries. 21, Tothill Street, S.W.1.	Whitehall 6711
FC	Forestry Commission. 25, Savile Row, W.1.	Regent 0221
FCMI	Federation of Coated Macadam Industries. 37, Chester Square, S.W.1.	Sloane 1002
FDMA	The Flush Door Manufacturers Association Ltd., Trowell, Nottingham.	Ilkeston 623
FLD	Friends of the Lake District. Pennington House, nr. Ulverston, Lancs.	Ulverston 201
FMB	Federation of Master Builders. 26, Great Ormond Street, Holborn, W.C.1.	Chancery 7583
FPC	The Federation of Painting Contractors, St. Stephen's House, S.W.1.	Whitehall 3902
FRHB	Federation of Registered House Builders. 82, New Cavendish Street, W.1.	Langham 4341
GBPA	Gypsum Building Products Association, 11, Ironmonger Lane, E.C.2.	Monarch 8888
GC	Gas Council. 1, Grosvenor Place, S.W.1.	Sloane 4554
GG	Georgian Group. 16, Hanover Square, W.1.	Mayfair 5454
HC	Housing Centre. 13, Suffolk Street, Pall Mall, S.W.1.	Whitehall 2881
IAAS	Incorporated Association of Architects and Surveyors. 29, Belgrave Square, S.W.1.	Belgravia 3755
ICA	Institute of Contemporary Arts. 17-18, Dover Street, Piccadilly, W.1.	Grosvenor 6186
ICE	Institution of Civil Engineers. 1, Great George Street, S.W.1.	Whitehall 4577
IEE	Institution of Electrical Engineers. Savoy Place, Victoria Embankment, W.C.2.	Temple Bar 7676
IES	Illuminating Engineering Society. 32, Victoria Street, S.W.1.	Abbey 5215
IGE	Institution of Gas Engineers. 17, Grosvenor Crescent, S.W.1.	Sloane 8266

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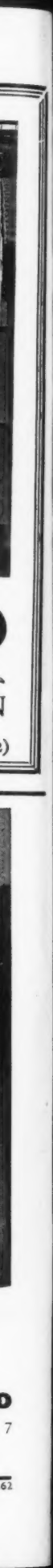


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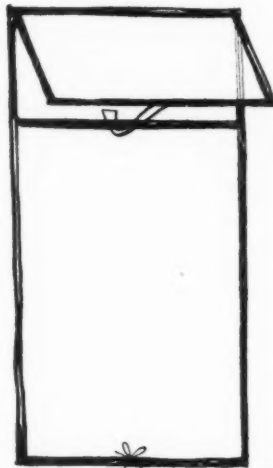
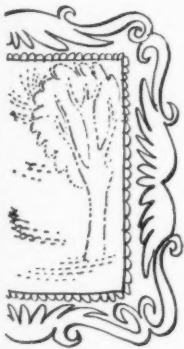
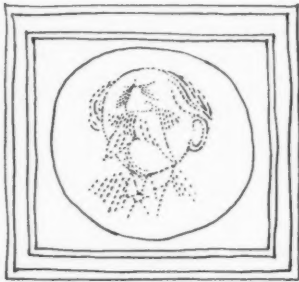
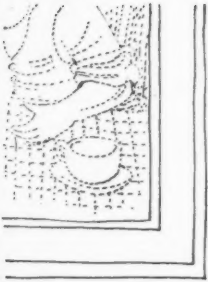


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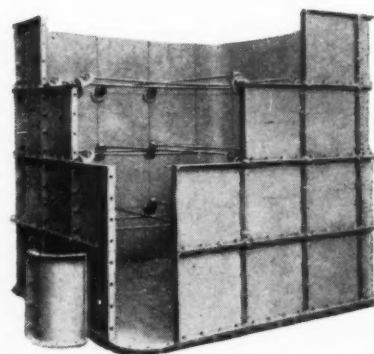
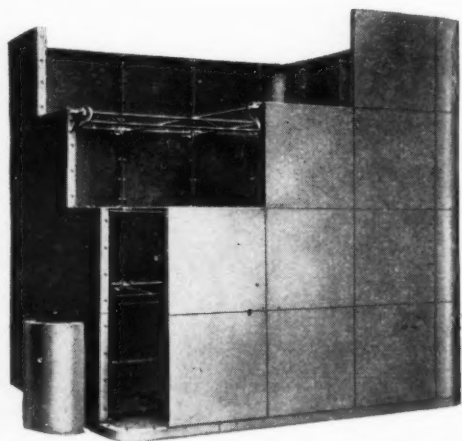




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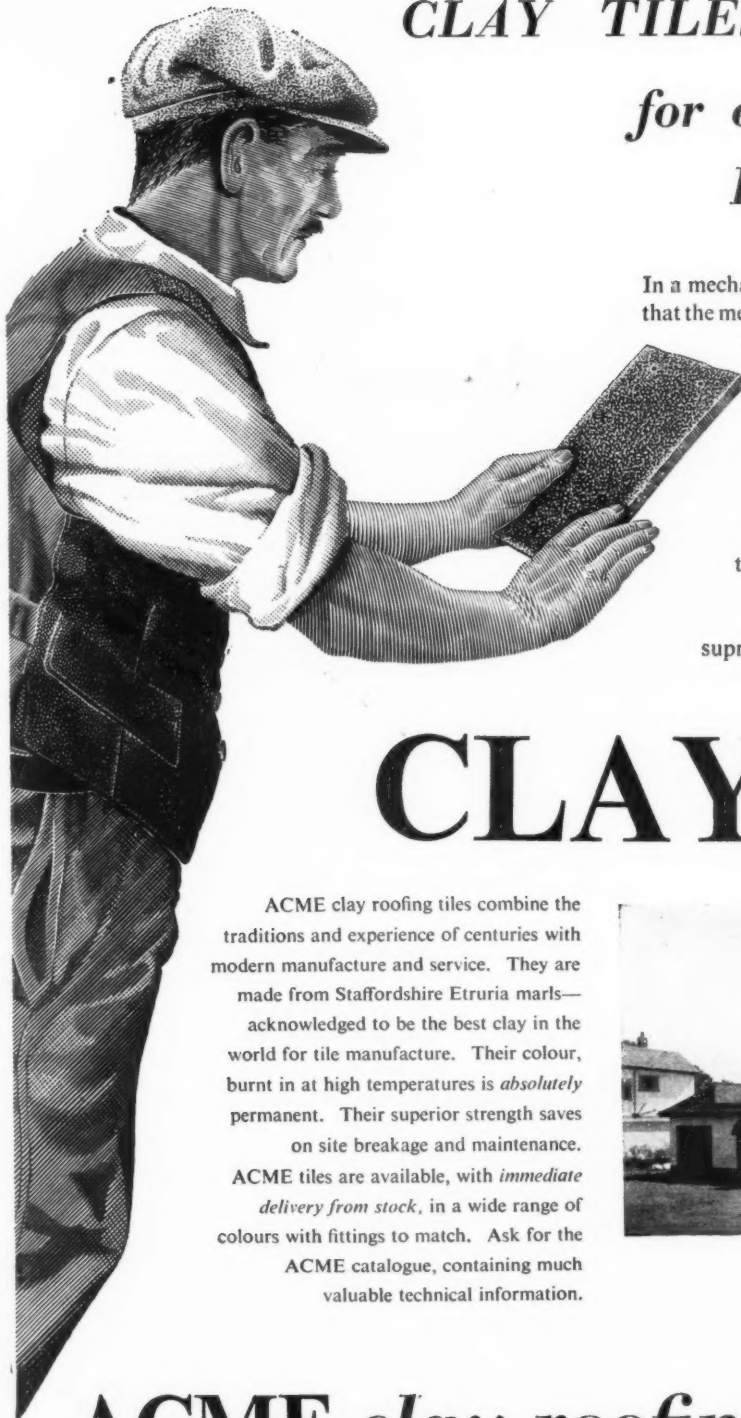
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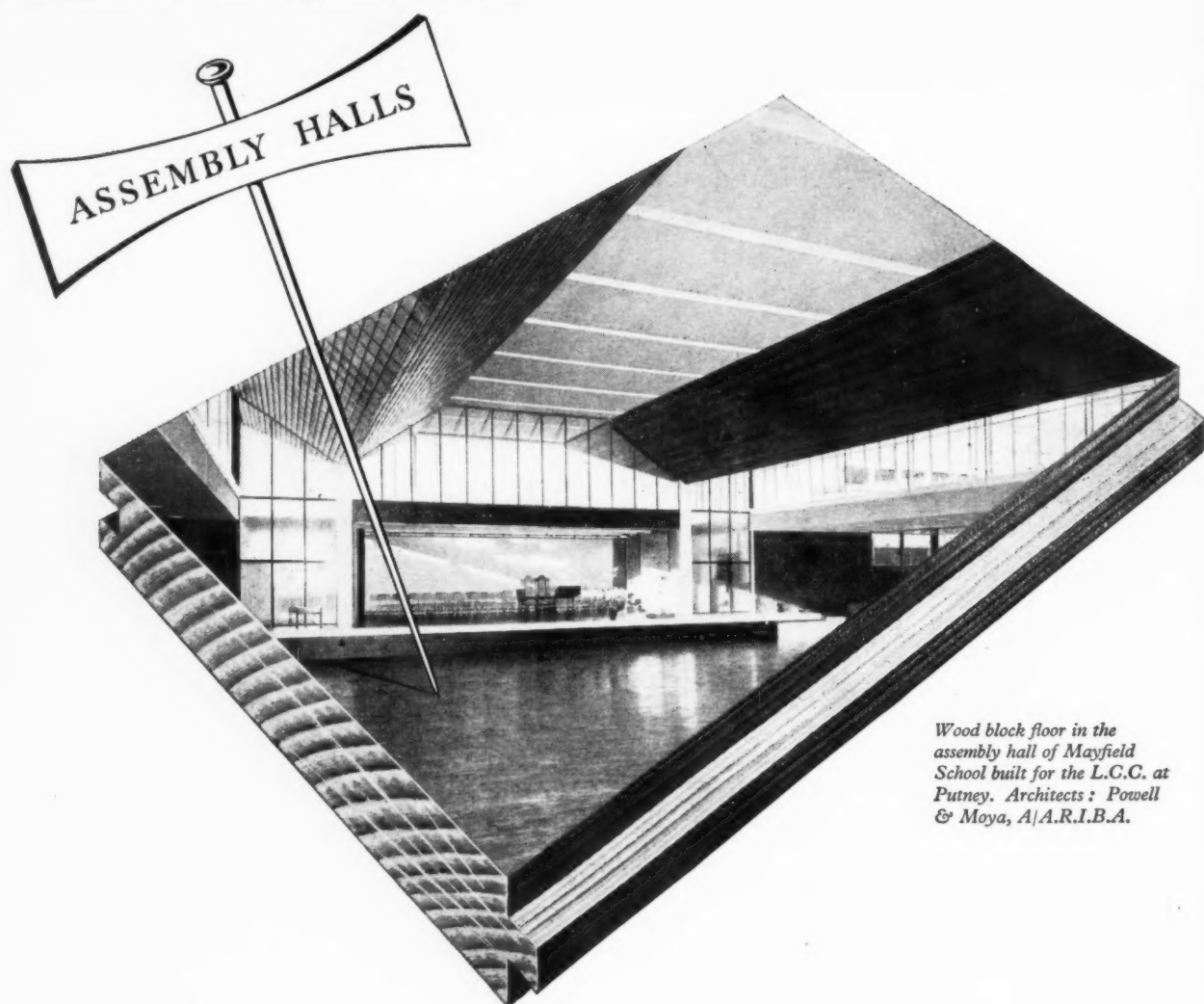
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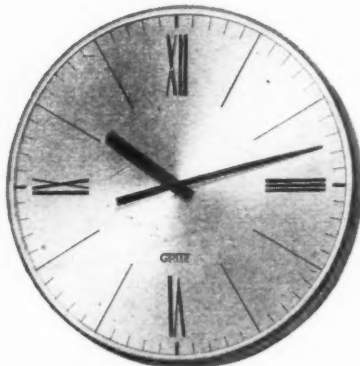
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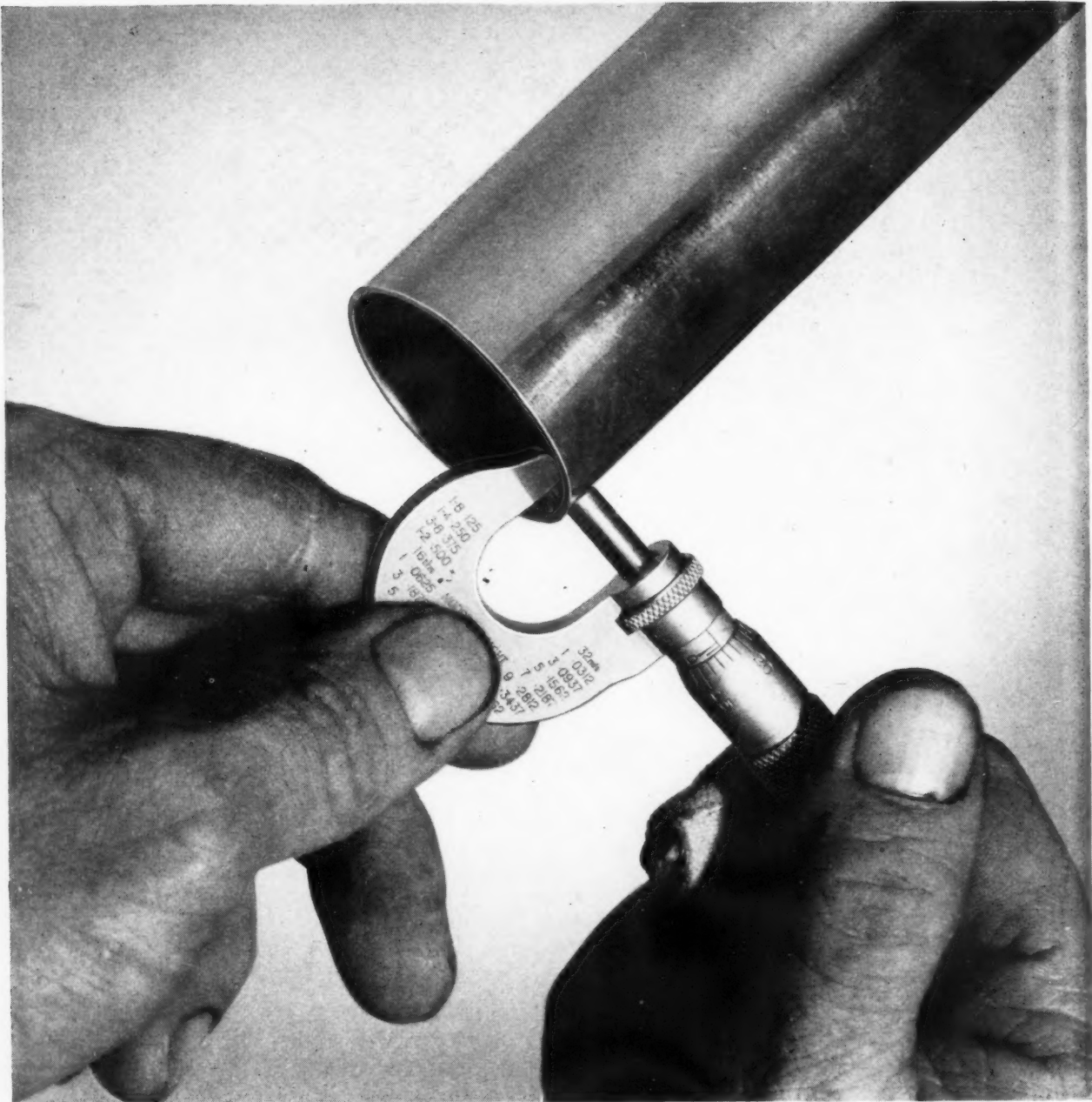
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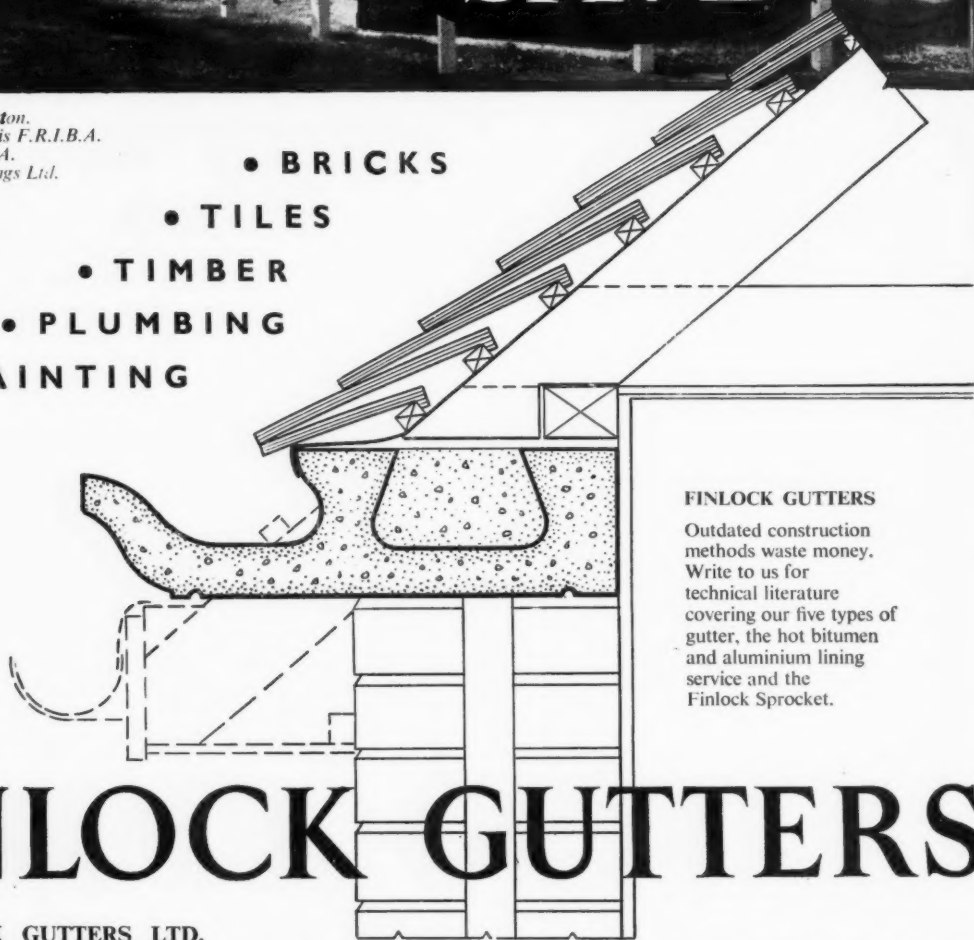
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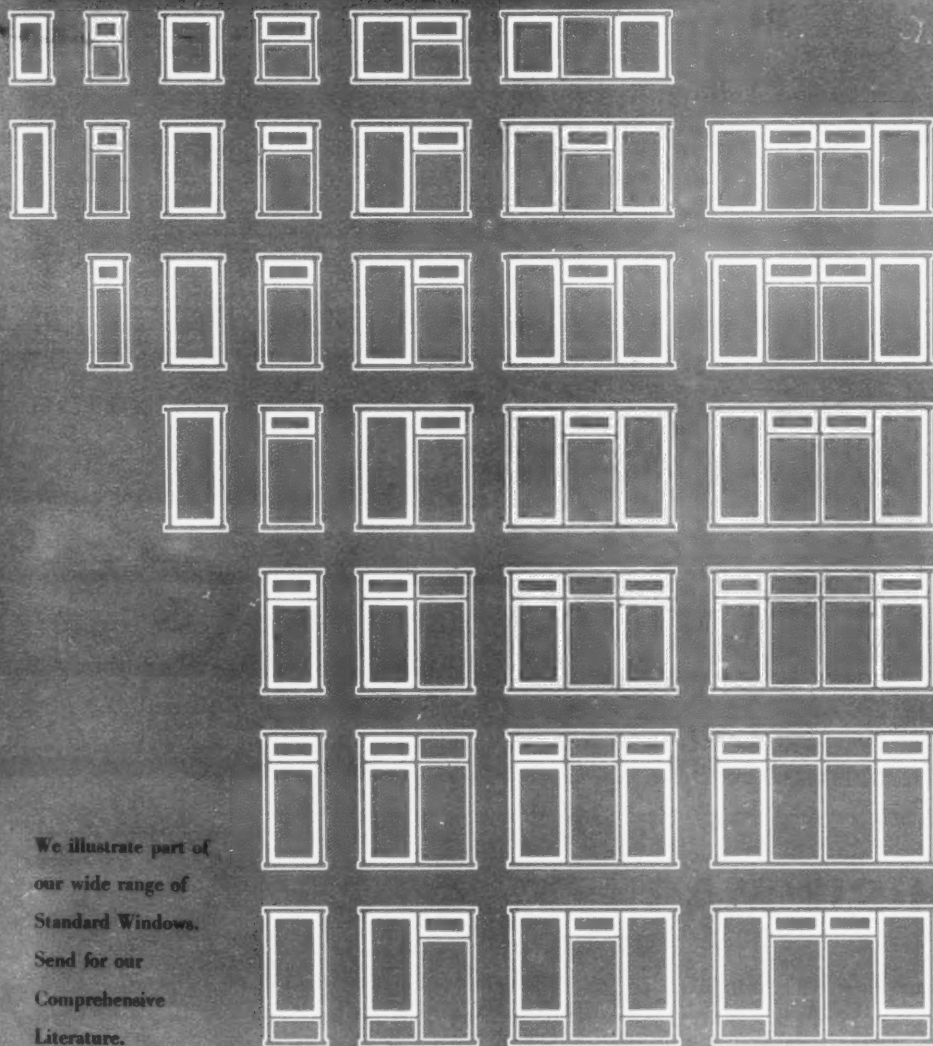
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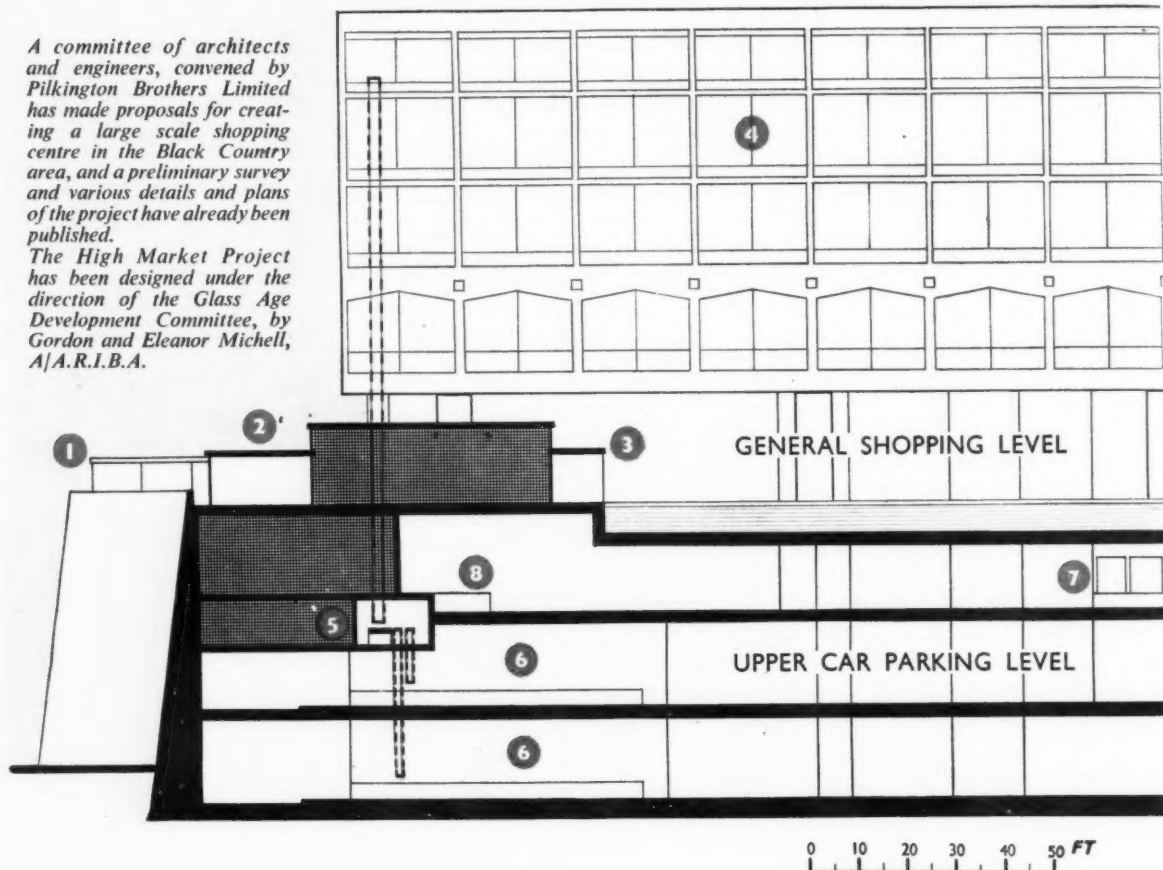
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AP/110

## The Glass Age Development Committee

*A committee of architects and engineers, convened by Pilkington Brothers Limited has made proposals for creating a large scale shopping centre in the Black Country area, and a preliminary survey and plans of the project have already been published.*

*The High Market Project has been designed under the direction of the Glass Age Development Committee, by Gordon and Eleanor Michell, A/A.R.I.B.A.*



## THE HIGH MARKET 4

On these two pages there is a section taken through the Boating Pool and looking towards the Department Store of High Market. The line of this section is shown in blue on the general view to the right. The key to the tints used on the section is given below, the key to the numbers is given on the opposite page. The vertical dotted lines at each end show the positions of the parcel chutes referred to in the previous report, which dealt with circulation.

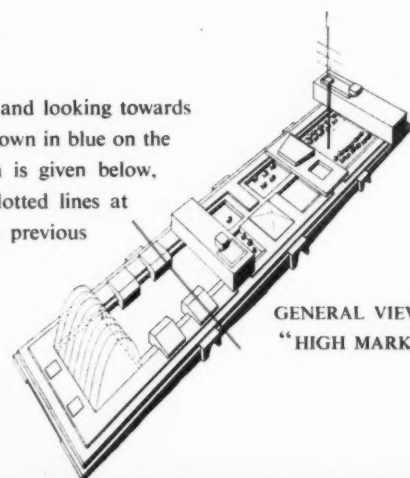
**KEY  
TO  
TINTS**



Water.



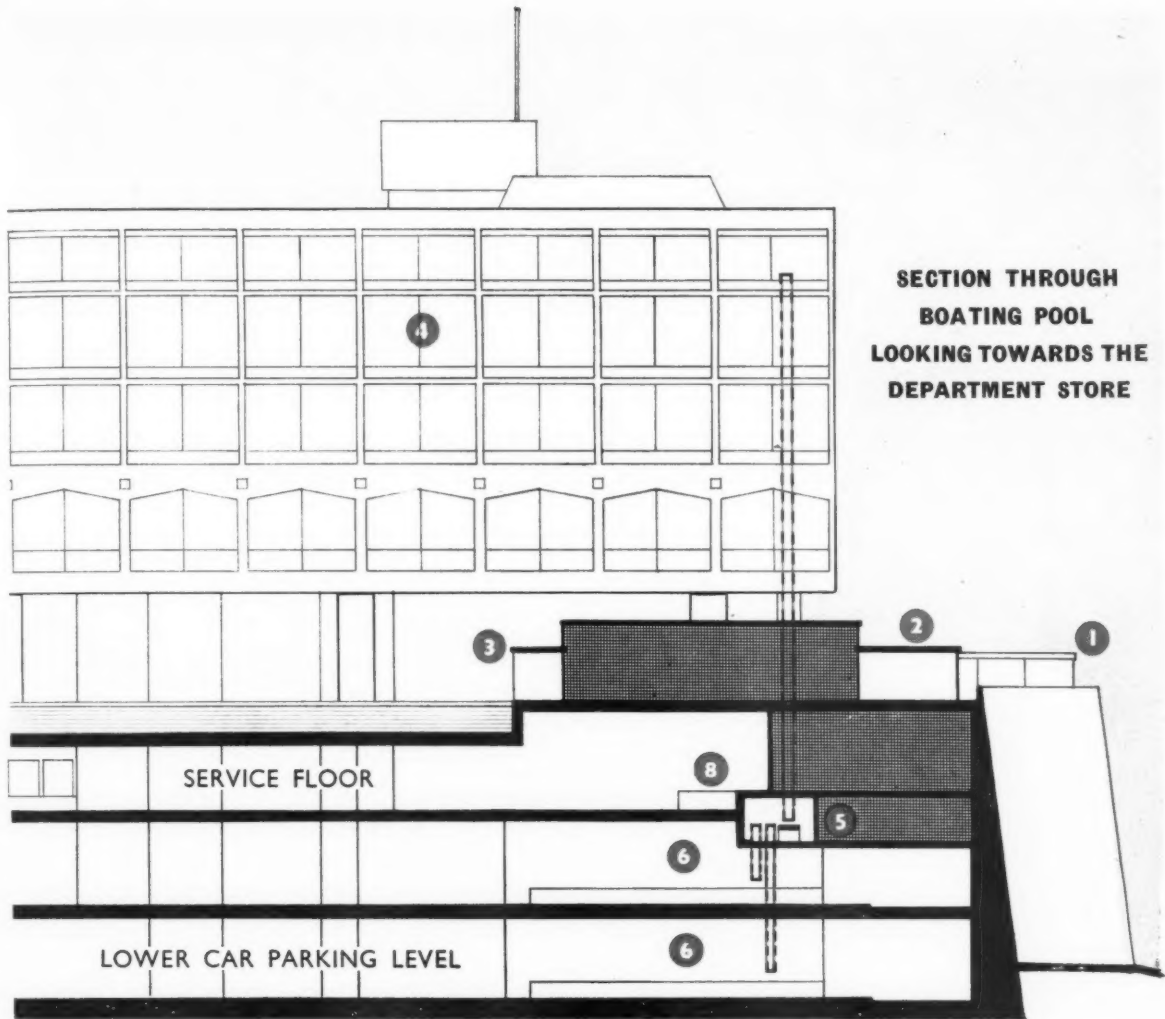
Double-fronted shops  
with individual stores  
and sub-stores below.



GENERAL VIEW OF  
"HIGH MARKET"



P I L K I N G T O N B R O T H E R S



KEY

- 1 Glazed observation terrace over entrance
- 2 Moving platform and sidewalk
- 3 Open arcade
- 4 Department store
- 5 Parcel belt
- 6 Parcel pick-up station
- 7 Goods lifts to Department store
- 8 Unloading bays



*This sketch shows articulated platforms which move continuously around the building in opposite directions. At intervals seats are placed on these platforms which move very slowly, and those seated have on one side a spacious view of the countryside and on the other they can see the shop-windows, with occasional glimpses into the central area of the building. As the articulated platforms are slow moving, it is quite easy to walk over them to reach the six glazed observation terraces over the entrance.*

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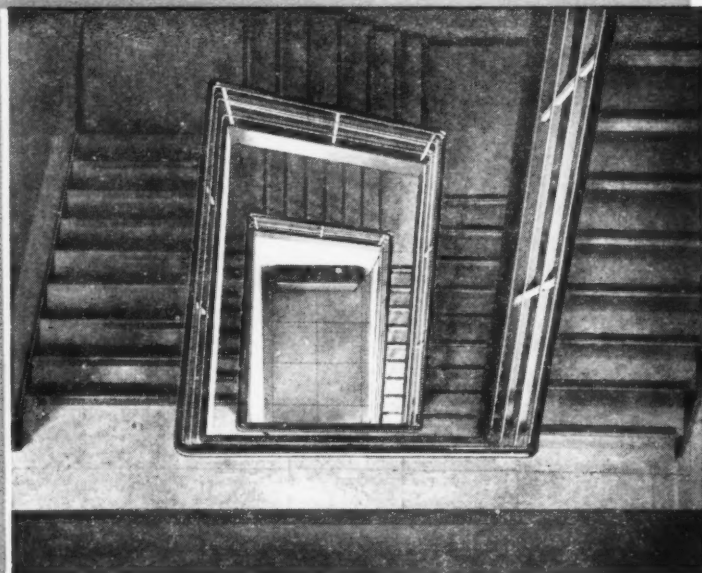
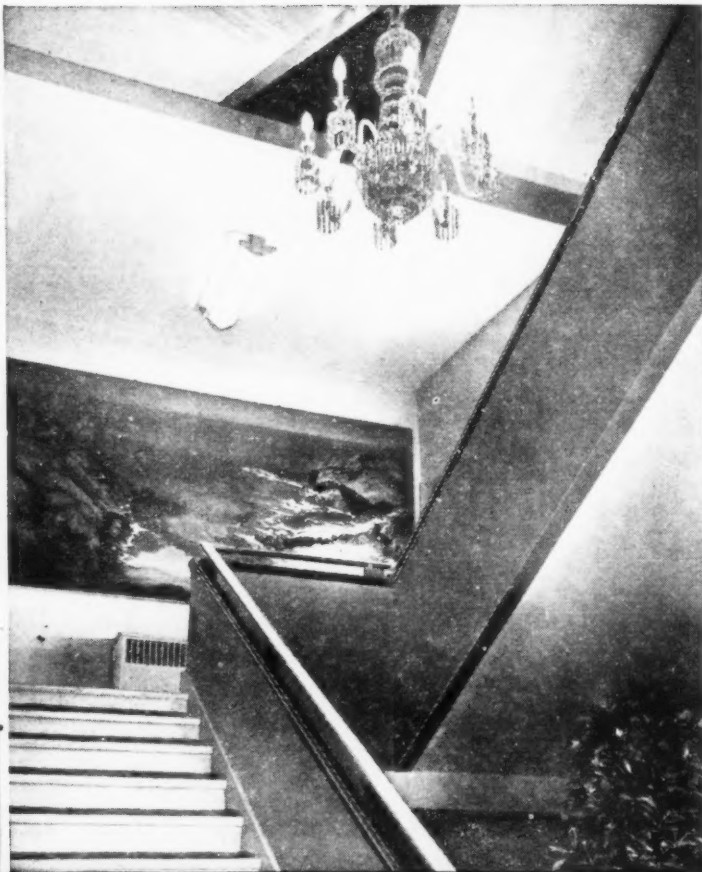
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*Architects: Sir John Burnet, Tait & Partners,  
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# ELECTRIC LIGHTING

## INDUSTRIAL LIGHTING INSTALLATIONS

It is sometimes not realised that the recommended minimum values of illumination quoted in L5, Table 1, are necessary at *all* production times irrespective of the state of the weather or the time of year. If the day lighting falls below the required level it must be possible to add sufficient electric lighting to make good the deficiency. The higher the illumination levels required by the work or processes undertaken, the more often will electric lighting be required, and the more important will it become to design the building with this aspect of the problem in mind.

### Conventional Single-storey Factories

In buildings of this type it is the usual practice to suspend the lighting fittings from the roof trusses, but every endeavour should be made to avoid placing the fittings under the roof lights where they may seriously obstruct the daylight and become excessively glaring during the hours of darkness when seen against the black glazed areas. The underside of the roof should be lined with light material—e.g. insulation board—and fittings selected which emit an appreciable proportion of their light upwards on the unglazed and lined areas of the roof.

### High Bay Workshops

This type of workshop common to foundries and heavy engineering works is often lighted by a number of powerful lamps mounted high up in fittings which concentrate the light downwards to avoid loss of light on the upper parts of the walls. The effect, however, is depressing, and gives rise to harsh shadows, with poor illumination on vertical surfaces and within the work generally, and a strong tendency to glare (see Fig. 1a). Where the surroundings are reasonably clean and lighter colours can be employed, a considerable improvement in working conditions is possible by mounting the lamps in dispersive reflector fittings (see L2). The loss of light due to absorption by the wall surfaces will be offset by the increased light output of these fittings, and the light reflected from the walls on to the working area will soften shadows, reduce the risk of glare, and provide better illumination of vertical and internal surfaces (see Fig. 1b).

It is strongly recommended that wherever possible, the high level lighting be supplemented by side lighting directed inwards and downwards from lamps mounted below the gantry crane. Fluorescent lamps are particularly effective for this purpose, and even without diffusing screens will conform to the statutory limitation on the brightness of fittings mounted less than 16 ft. from the floor; (Fig. 1c).

### Maintenance of High Mounted Fittings

There is an increasing tendency to use fluorescent lamps in very high interiors, especially cold cathode lighting due to its high nominal life—15,000 hours before replacement becomes necessary. This does not however justify inadequate means of access to high mounted fittings, as the frequency with which they need attention is determined by the rate of accumulation of dirt rather than the necessity for replacing lamps. Fittings are frequently mounted so as to be maintained from the travelling crane, but it is far better to provide independent access—e.g. by catwalk or cradle—to ensure adequate attention to the lighting.

### Multi-storey Factories

With the exception of roof lights on the top floor and below light wells, daylight in multi-storey factories is provided by side windows, which cannot be relied upon for satisfactory illumination beyond 10 to 15 ft. into the building (see Fig. 2). The rooms or workshops being generally low in relation to their width, almost continuous electric lighting will be needed over substantial areas in the centre

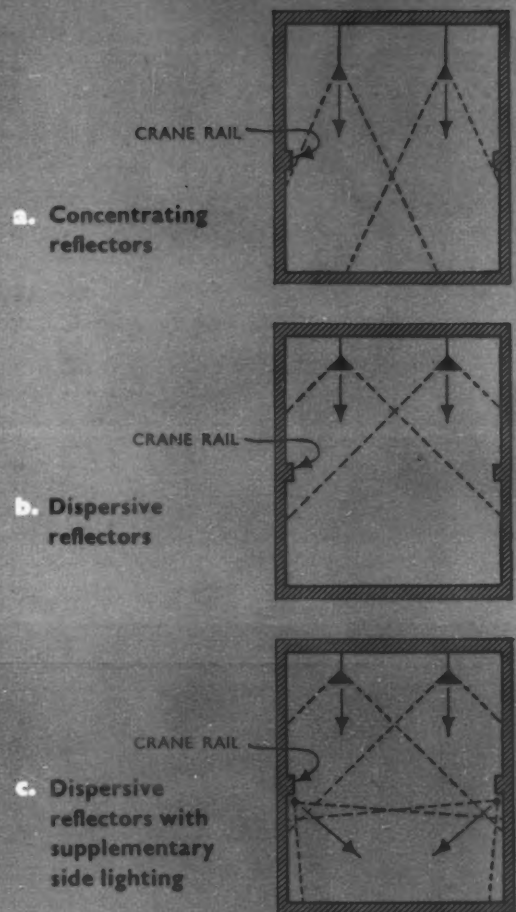
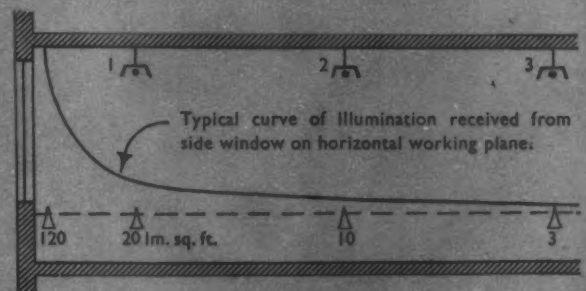


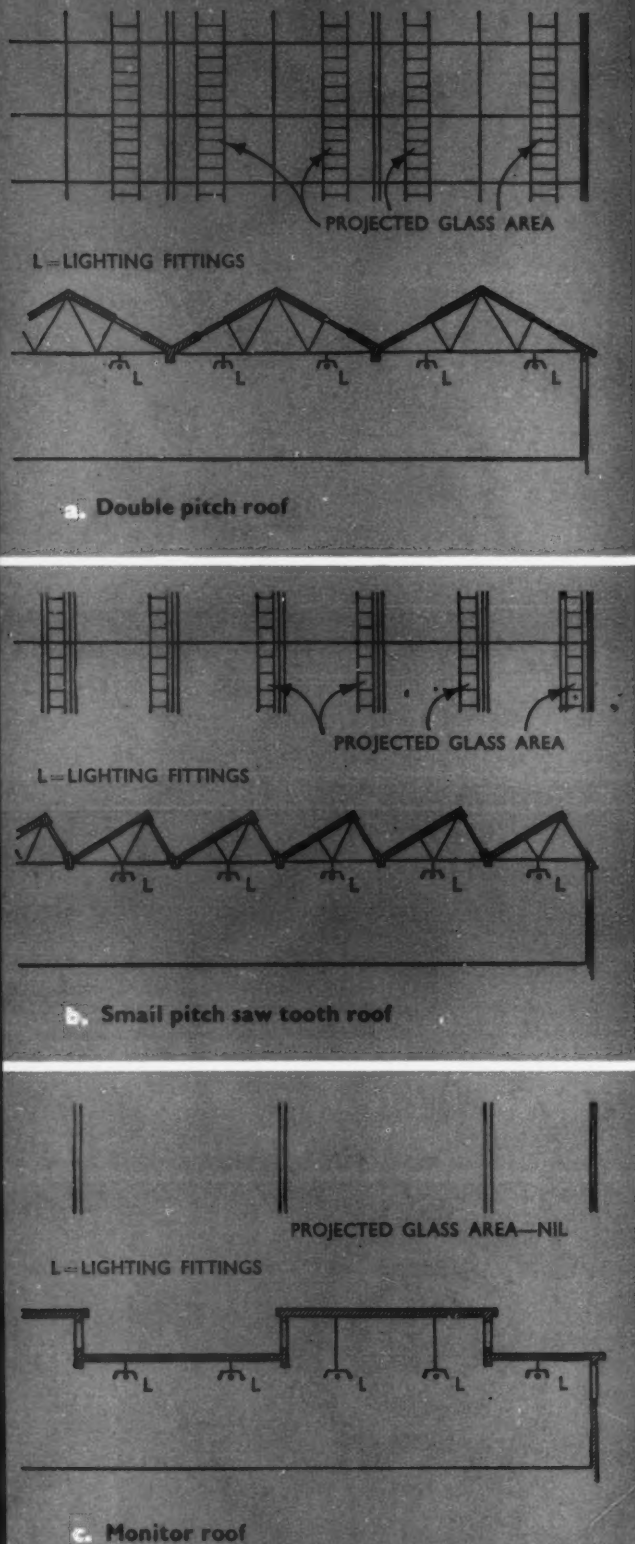
Fig. 1 High bay workshop lighting



Figures 1, 2, 3 denote order of lighting up as daylight fades, each row of fittings being independently switched.

Fig. 2 Supplementary lighting

L.6



**Fig. 3** Roof sections  
in relation to electric lighting

of large interiors. Owing to the comparatively low ceiling height, lamps of high wattage cannot normally be used, and a large number of lighting fittings may be required since the spacing-mounting height ratio must remain  $1\frac{1}{2}$  to 1 (see L5).

Fluorescent lamps give the most satisfactory results under these circumstances and are widely used in this type of interior, since their light blends in an acceptable manner with that in the window-lighted areas, and their linear form lends itself to straightforward and efficient layouts. Although the brightness of the individual lamps is low, no relaxation of the normal shielding requirements is permissible since serious glare may arise from such a large area of visible light sources. Switching should be arranged so that the electric lighting of the centre areas of any large room or workshop can be used independently of the lighting near the windows.

#### The Integration of Day Lighting and Electric Lighting

In the design of single-storey factories, the roof shape, including trusses, beams and glazing, must be regarded as part of the electric lighting installation—a kind of overall lighting fitting, the efficiency of which has a notable effect on the illumination provided after dark and during periods of inadequate daylight. The desired uniformity of lighting can be maintained throughout the whole working period only when both day and electric light are themselves uniformly distributed, and this requires that roof lights and electric lighting must be planned in relation to each other as well as to the production area. Fig. 3 shows three systems of roof design which provide reasonably uniform day lighting, though with different daylight factors; (a) is the least satisfactory for electric lighting, whether supplementary or after dark: much light will be lost through the roof glazing unless closed top reflectors are used when an unpleasant tunnel effect will probably be found. Better results will be obtained from (b) where the visible areas of glazing are less but the natural light comes from one direction only, and from the electric lighting aspect the roof is still 'wasted'. Monitor type roofs as (c) not only give reasonably uniform daylight, but provide the clear reflecting surfaces necessary to give uniform electric lighting as well. The appearance of this interior will also be better than in the other examples, owing to its all-over lightness when illuminated and the small visible area of glazing. Moreover both sides of the vertical glazing are easily cleaned: other types are difficult to reach and remain uncleaned in consequence. Although switching control may not always be decided by the architect, automatic photo-cell control should be considered, as its use will affect the wiring layout. This system, now developed to full reliability and great flexibility, is the only certain way of ensuring that the designed integration of day and electric lighting will, in fact, take place.

#### The Structure and the Services

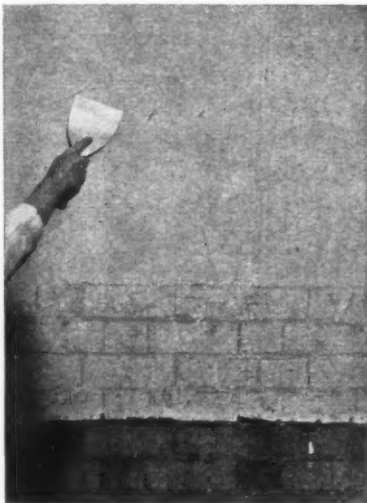
Consideration should always be given to the possibility of using the structure to house or support lighting fittings, to screen them, or to provide access to them for maintenance. Concrete roofs, in particular when of the barrel or vaulted type, are of great assistance: the light, clean ceiling so formed makes an excellent reflector, and may even permit the use of unshielded fluorescent lamps provided that they are normally seen against the bright ceiling. It is important, however, with shell concrete vaults to incorporate fixings for conduit, fittings and other services before concreting in order to avoid the labour and cost of cutting away, and the loss of strength which may result therefrom.

For further details apply to:



# FILLEX

Dockers new general  
purpose filler  
(ready mixed)



1 Fillex being applied over brickwork

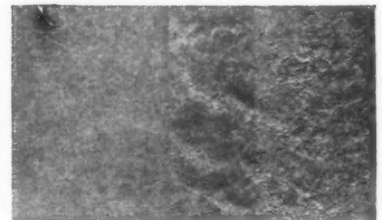
Here is a NEW general purpose filling compound, designed specially for the decorator.

FILLEX, which is supplied in ready-for-use paste form, can be used for filling in cracks in plaster and for skimming rough surfaces. It is suitable for most surfaces other than wood or metal.

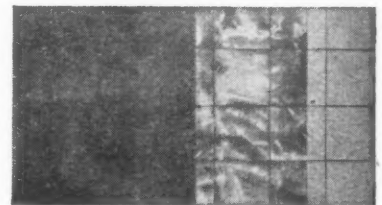
## FILLEX

- is suitable for INSIDE and OUTSIDE work.
- has exceptional adhesive properties and can even be used on glazed tiles to produce a smooth surface for painting.
- has excellent keeping qualities (but should be protected from frost).
- is supplied in 4 lb. and 16 lb. tins.

PRICE: 4 lb. tins at 1/6 per lb.  
16 lb. tins at 1/3 per lb.



2 Fillex being applied over textured paint surface



3 Application of Fillex to tiled surface

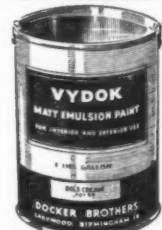
After **FILLEX**  
finish off with...



**DOCKERLUX**  
The finest Gloss  
Paint in the  
world.



OR **YDOK**  
The perfect  
Emulsion Paint  
in matt and  
eggshell  
finishes.



**DOCKER BROTHERS** LADYWOOD, BIRMINGHAM 16 • LONDON SHOWROOMS: 17 BERNERS STREET W.1



*Reproduced by permission of Hickleton & Phillips, London, E.C.4*

This fine example of George III Silver was made in London by Andrew Fogelberg in 1771.

## *Products of Integrity*

In this age of synthetics and substitutes  
the authentic production still commands the  
respect and favour of the discriminating.

Specify—

# CLAY ROOFING TILES

*Issued by the National Federation of Clay Industries, Drayton House, London, W.C.1*

*'The Clay Tile Bulletin,' post free on request*

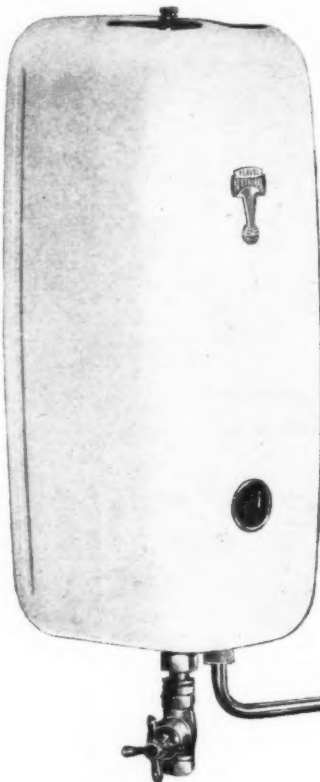
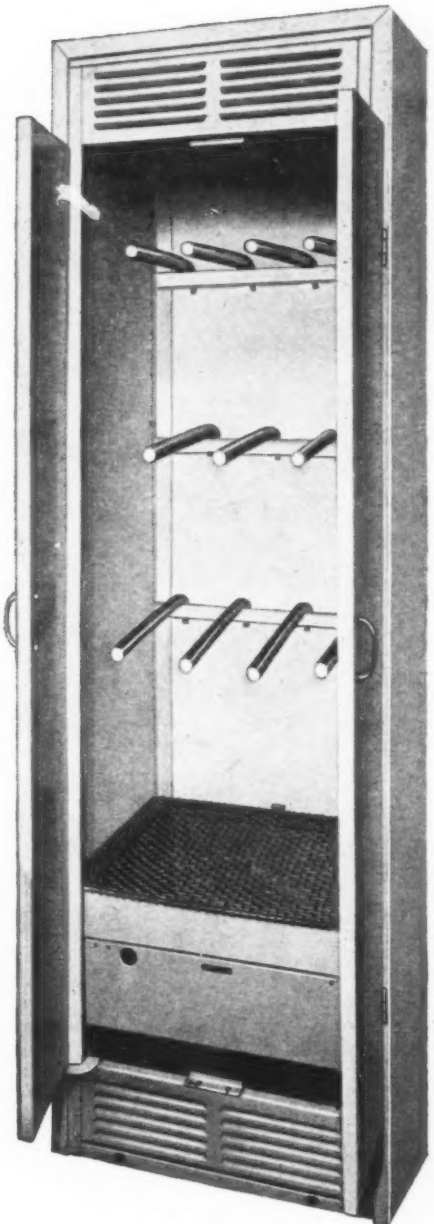
# The FLAVEL

## Gas Heated Clothes Dryer

(FOR SINGLE DWELLING INSTALLATIONS)

The FLAVEL Clothes Dryer is constructed so that it can be supplied either as a complete unit or, alternatively, for building into a recess or corner by utilising the main frame assembly and such component parts as may be necessary.

The FLAVEL Gas Heated Clothes Dryer is strongly constructed of zinc-coated steel sheet, finished in cream stoved paint. Fitted with double doors, and heated by means of a gas-burner unit in the base, the Dryer is large enough to contain an average weekly wash. The clothes are hung on eleven tubular bakelite rails at three different heights. A guard is provided above the burner unit and the gas-rate is controlled by means of a constant-pressure governor. Gas Rate 10,000 B.Th.U. per hr. (20 cu. ft./hr. of 500 C.V. gas). Connection  $\frac{1}{4}$ -inch B.S.P.



### The FLAVEL NATIONAL

INSTANTANEOUS SINK  
GAS WATER HEATER

\* Designed for wall fixing, the Flavel National is a broken feed type heater and the working parts are totally enclosed.

\* The one piece, easily detachable steel case is finished in gleaming white or cream vitreous enamel for easy cleaning.

\* The gas burner consists of 12 jets that should not require attention in normal use.

\* The Flavel National provides half-a-gallon of very hot water per minute.

\* The Flavel National is easily maintained, for by the removal of a single knurled nut, the heat exchange unit can be unhooked and cleaned in less than five minutes by the consumer. Maintenance as detailed above is periodically recommended.

\* Rating 35,000 B.Th.U./hr.  
Gas connection  $\frac{1}{2}$ " B.S.P.

## See a FLAVEL first

SIDNEY FLAVEL & CO. LTD., LEAMINGTON SPA • Telephones: (Sales) 3091 and 8700 • Telegrams: FLAVELS

*Important Revisions of British Standards for Lead Pipe*

Many permissible minimum weights greatly reduced

---

**For a typical low-cost house,  
the costs of plumbing in Lead can  
be reduced by**

**30%**

**as a result of the new  
British Standards for Lead pipes to  
B.S.602 and B.S.1085**

Tables incorporating the new standards have been prepared and are available in a revised edition of "CONCISE INFORMATION ON LEAD PIPE" free on request.



**LEAD SHEET AND PIPE COUNCIL**

*In association with* LEAD DEVELOPMENT ASSOCIATION

EAGLE HOUSE · JERMYN STREET · LONDON · SW1

Telegrams: Ukleadman, Piccy, London      Telephone: Whitehall 4175

B.126



## The attributes of beauty..

*"properties gracefully combined in an  
object so as to please or attract  
the senses, especially the eye..."*

*a true description of the Mark 12 Door.*



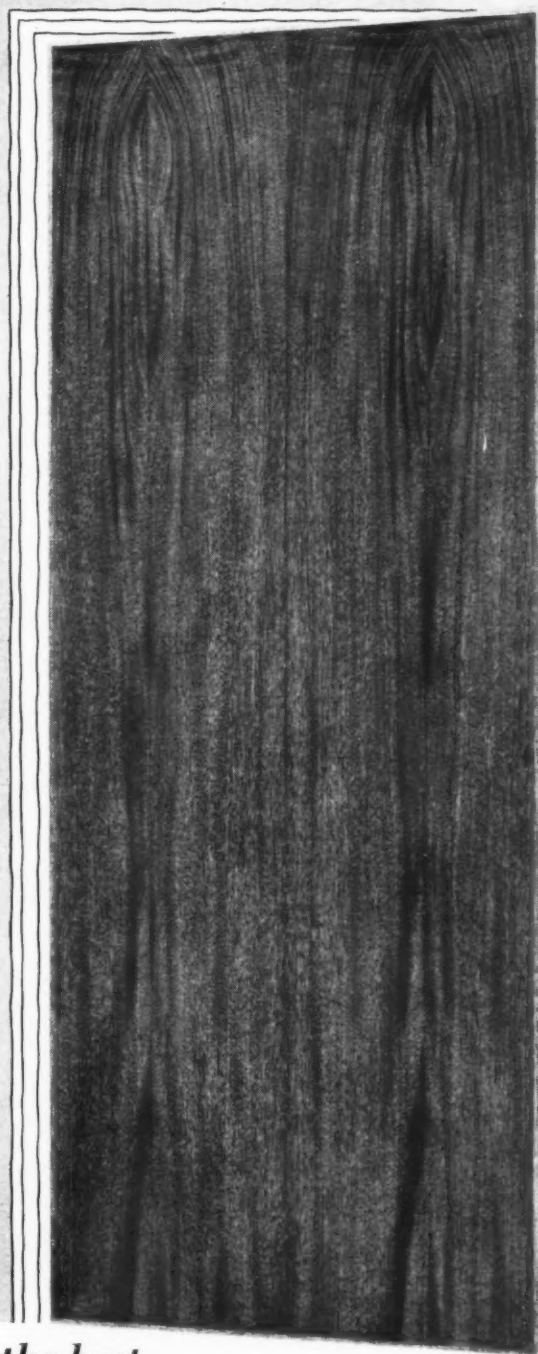
The Mark 12 lattice core  
flush door has looks as well  
as endurance. It is veneered  
both sides with \*West African  
cedar and is lipped on all four  
edges.

\*West African cedar . . .  
produces superb veneer,  
warm brown in colour;  
the attractive figure  
being fully brought out  
by careful matching-up  
at our factory.

We think you will  
be surprised at the low  
cost of this attractive door.  
Write today for price list.

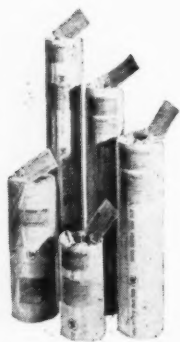
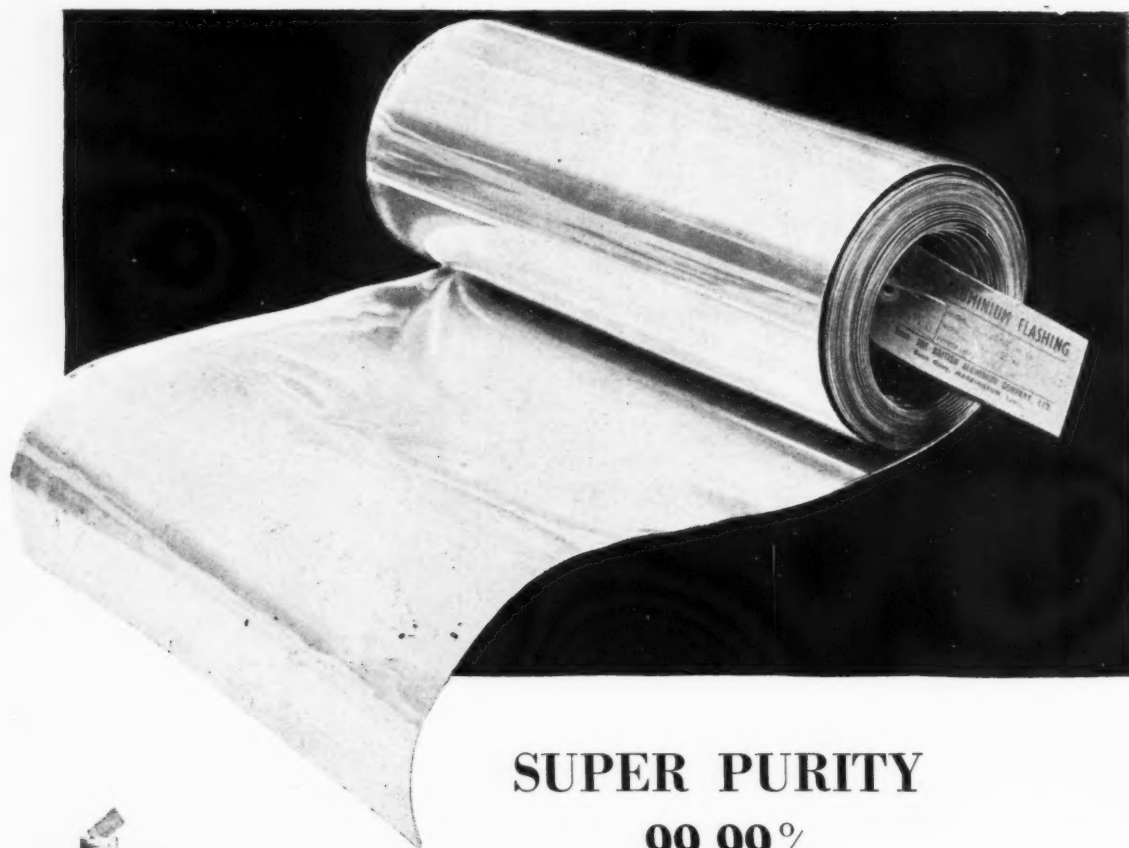
## Gliksten Doors

*Cheapest in the long run - the best*



**Gliksten Doors Ltd., Carpenters Road, Stratford, London, E.15 Tel: Amherst 3300**

*Liverpool Office: 87, Lord Street. Tel. Central 3441*



## **SUPER PURITY** **99.99%** **ALUMINIUM - flashing quality**

Flashing Quality Super Purity, specially refined to 99.99 per cent, is the most malleable aluminium you can buy, admirably suited to traditional plumbing techniques.

More highly resistant to atmospheric attack than any lower purity of aluminium, Flashing Quality Super Purity is the ideal permanent flashing material, costing considerably less than other metals of comparable life. For example, 5 cwt of 20 s.w.g. Super Purity costs only 2s. 2d. a square foot.

Ample stocks of Flashing Quality are available, in 14 and 28 lb rolls; 80 lb rolls can be supplied specially. Please write for further information and for the name and address of your nearest stockist.

**Super Purity is a plumbers' metal**



**The BRITISH ALUMINIUM Co Ltd**  
NORFOLK HOUSE ST JAMES'S SQUARE LONDON SW1

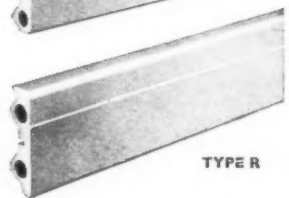
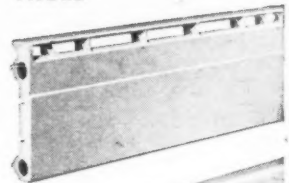
# You don't notice the perfect heating system!



**CRANE CAST IRON SKIRTING HEATING** is virtually invisible—yet it distributes warmth evenly to every point in the room! It simply replaces the normal wooden skirting, leaving the entire floor space of the room free from obstruction, and can be finished in any colour to fit in with decorative schemes. Here indeed is a heating system that gives unlimited scope for 'free' architectural planning and interior decoration. There are two types of Crane Skirting Heating—'RC' (combined

Radiant and Convection) and 'R' (Radiant). Both ensure that there are no 'cold spots' or 'hot spots' anywhere in the room. Furthermore, the temperature gradient for type 'RC' is only two or three degrees Fahrenheit—and for type 'R' no more than one or two. Crane Skirting Heating can be used on hot water (up to 120 ft. head) or low pressure steam systems. Write to the address below for a copy of our free booklet giving full details of the Crane Skirting Heating System.

TYPE RC



TYPE R

## CRANE BOILERS AND HEATING EQUIPMENT

CRANE LTD., (DEPT. J.13), 15-16 RED LION COURT, FLEET STREET, LONDON E.C.4.  
Branches: Birmingham, Brentford, Bristol, Glasgow, London, Manchester. London Showrooms: 118 Wigmore St., London, W.1.

24

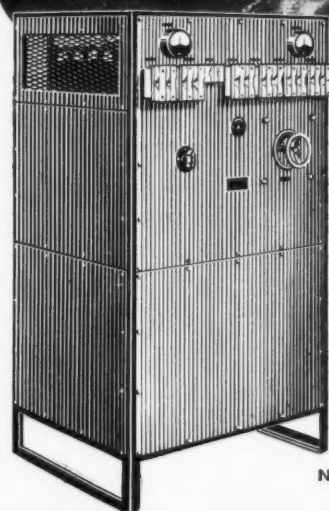
# They never let you down



## THE POLICE FORCE

*The policeman patrolling his beat is backed by many specialist departments. In an emergency, a 'phone call will quickly bring an ambulance to the scene or put a police car on the track of a stolen car or wanted person. Special police telephone boxes and radio-controlled cars enable the police to be on the spot in a matter of minutes. They never let you down.*

**Y**OU CAN BE CERTAIN TOO that Nife-Neverfayle Emergency Lighting Equipment will never let you down. *Whenever needed*, these reliable units will instantly, automatically spring into action. That is the special advantage of the Nife Steel Alkaline Battery—it never deteriorates, even after long periods of inactivity. Nife-Neverfayle units occupy only one-third of the space required by conventional equipment, and, as they can be installed adjacent to other equipment, a separate battery room is not needed—a point worth remembering when planning new buildings. Maintenance costs are negligible—after years of trouble-free service you will realise just how economical your Nife-Neverfayle equipment has been.



# NIFE-NEVERFAYLE

THE EMERGENCY LIGHTING EQUIPMENT WITH THE **STEEL** ALKALINE BATTERY

NIFE BATTERIES · REDDITCH · WORCESTERSHIRE



n



N.91

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CHIRE



HIGGS <sup>AND</sup> HILL  
LIMITED

LONDON

LEEDS

COVENTRY

JAMAICA, B.W. I.

## FOR CONCRETE REINFORCEMENT



The photograph shows a nine-storey block of residential flats in course of erection for the St. Pancras Borough Council. The reinforced concrete frame was carried out in our patent FRAMEWELD system.

*Architects : Norman & Dawbarn. Contractors : St. Pancras Borough Council, Building Department.*

# FRAMEWELD

TRADE MARK

PATENT No. 589066

**A real time and money saver**

A copy of the FRAMEWELD handbook describing the system will be sent on request.

**T. C. JONES** AND COMPANY LIMITED  
REINFORCEMENT ENGINEERS

HEAD OFFICE : WOOD LANE, LONDON, W.12

Telephone: SHEpherds Bush 2020

SOUTH WALES OFFICE : BUTE STREET, CARDIFF

Telephone: Cardiff 28786

REINFORCEMENT DEPARTMENT:

17 BUCKINGHAM PALACE GARDENS, LONDON, S.W.1

Telephone: SLOane 5271

WORKS: Shepherds Bush, London

Neasden, Middx.

Treorchy, Glamorgan

*All reinforcement enquiries please, to: 17 Buckingham Palace Gardens, London, S.W.1*

THE  
**600**  
GROUP  
OF COMPANIES



**WOOD—nature's best building material**

# CANADIAN White Pine...

—a light-in-weight creamy white wood used extensively  
where long life is of greater importance than high strength

## TYPICAL USES

Windows and doors, household fittings,  
cabinet-work, and general carpentry  
Shipbuilding and boat building, en-  
gineering works, house construction,  
household appliances

Patterns, drawing boards and artists'  
supplies

Musical instruments

Match splints

Wood flour (used for manufacture of  
linoleum etc.)

## SPECIAL ADVANTAGES

Uniform in texture, works well under  
tools

Seasons easily, low shrinkage

Takes stains, paints and varnishes ex-  
ceptionally well

Good nail-holding properties, does not  
tend to split or splinter

Exported as deals, boards, sidings, deal  
ends—and as waney and square timbers  
for special purposes

## FOR FURTHER INFORMATION

concerning Canadian woods contact The  
Commercial Counsellor (Timber), Canada  
House, Trafalgar Square, London, S.W.1.



TIM 5

Reproduced here is figure of Canadian White Pine

This advertisement is one of a series featuring Canadian Douglas Fir, Spruce, Red Pine,  
Pacific Coast Hemlock, and Western Red Cedar

# DOUGLAS FIR PLYWOOD



## 7 GRADES of Seaboard Douglas fir plywood

Good Two Sides (G2S)  
Good One Side Solid Back (G-Solid)  
Good One Side (G1S)  
Solid Two Sides (Solid 2S)  
Solid One Side (Solid 1S)  
Sheathing  
Underlay Sheathing  
Standard Sizes: 8 x 4 ft. (Lengths over  
8 feet available on order).  
Thicknesses (depending on grade):  
1/4, 5/16, 3/8, 1/2, 5/8 and 3/4 inches.

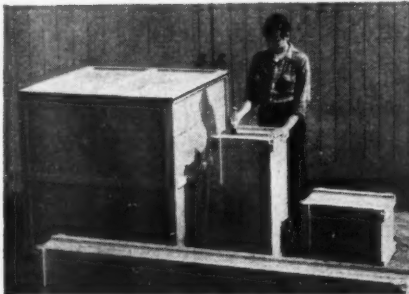
The modern kitchen shown above demonstrates the design possibilities of sanded grades of Douglas fir plywood. One-piece doors reduce labour to a minimum; their smooth, unbroken faces are dust-free, easy to maintain. Builders and shopfitters will note that these properties are equally of value in partitions, counters and in scores of other applications.

Sanded or unsanded, Seaboard Douglas fir plywood has a grade for every purpose: concrete shuttering, roof decking or sarking, laminated trusses, gussets, floors or bases for floor coverings.

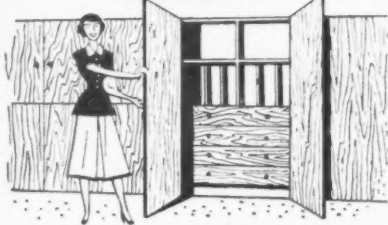
# the wood with 1000 uses



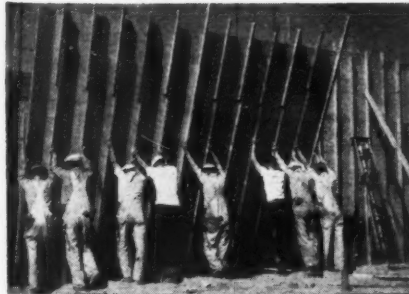
SHOP FITTING



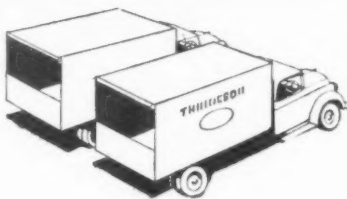
PACKING CASES



BUILT-INS



CONCRETE SHUTTERING



LORRY BODIES, BUSES

Seaboard Canadian Douglas fir plywood is manufactured with a full phenolic bond, produced with heat and pressure to become an integral part of the panel—stronger than the wood itself—making the plywood dependable outdoors or indoors for literally thousands of purposes, from boats to box beams, panelling to packing cases.

Of special interest to designers, builders and industrialists is the fact that Seaboard offers a grade of Douglas fir plywood for every purpose. No longer must plywood be reluctantly left out of specifications when its amazing properties are needed, yet when "top panelling grades" are too costly. In addition to smooth sanded panels, Seaboard is available in unsanded "utility grades" obtainable only in Douglas fir plywood. These are specifically known as SHEATHING and UNDERLAY SHEATHING, and are purposely engineered for use where both strength and economy are more obviously necessary than a quality finish.



ROOF-DECKING



FLOOR UNDERLAYMENT



## SEABOARD

### CANADIAN DOUGLAS FIR

## PLYWOOD

Seaboard Lumber Sales Co. Limited, Seaboard House, Vancouver 1, Canada

N. R. M. Morison, Esq.,  
1 - 3 Regent Street,  
London S.W. 1

Please send me a free copy of the Seaboard Plywood Handbook (L-11) describing your full selection of Douglas fir plywoods.

Name.....

Address.....

UK-56-1-15

(Please print plainly)



**EVERY ARCHITECT AND BUILDER SHOULD HAVE THIS CATALOGUE!**

- DOOR FRAMES
- FRENCH CASEMENTS
- PIVOT HUNG WINDOWS
- WINDOWS OF SPECIAL CHARACTER
- TRADITIONAL WINDOWS AND BAYS
- CONTEMPORARY WINDOWS AND BAYS

Standard 'Modolite' window components may be combined to obtain windows of almost any character and size for all forms of constructional work.

**SEND FOR YOUR COPY NOW**

**H. C. JANES LTD**

Joinery Manufacturers  
BARTON • BEDFORDSHIRE  
Telephone : Hexton 364



*Whatever the House  
Large or Small  
insist on---*



**CABLES**

You can be sure of complete satisfaction from Rists T.R.S. and V.I.R. house wiring cables. Manufacturers of Cables for internal maintenance wiring, electric fans, soldering irons, etc

*Write now for further details.*

**BRITAIN'S LARGEST MAKERS OF THERMOPLASTIC CABLES**

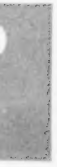
**RISTS WIRES & CABLES LTD.**

LOWER MILEHOUSE LANE • NEWCASTLE-UNDER-LYME • STAFFS



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*Acoustics by* **BURGESS**

selective sound control with  
Burgess acoustic tiles

**BURGESS PRODUCTS CO. LTD**  
ACOUSTICAL DIVISION, HINCKLEY, LEICESTERSHIRE





# Hey Prestik!

WHAT A SAVING OF TIME  
AND TROUBLE!

## JOINTING, SEALING, BEDDING

... all can now be done *and better done* with a remarkable saving in time! The new PRESTIK is astonishingly simple and clean to use. No special skill or special tools needed. Just reel off as needed and press it into the joint, for a really permanent, weatherproof job *outside or inside*. Ask your Builders' Merchant for PRESTIK. Or write to us for sample.

## white PRESTIK Builders' Sealing Strip

*made by the* **Bostik** *people*

BOSTIK and PRESTIK are registered trademarks of:

**B.B. CHEMICAL CO., LTD., ULVERSCROFT ROAD, LEICESTER.**

### PRESTIK makes quick work of:

**MASONRY**—Jointing gutter sections and coping stones. Bedding and jointing concrete blocks and panels.

**PRE-FABRICATION**—Bedding and Jointing roof sections. Sealing joints in sectional buildings.

**FLOORS**—Sealing cable duct covers. Sealing skirting board joints.

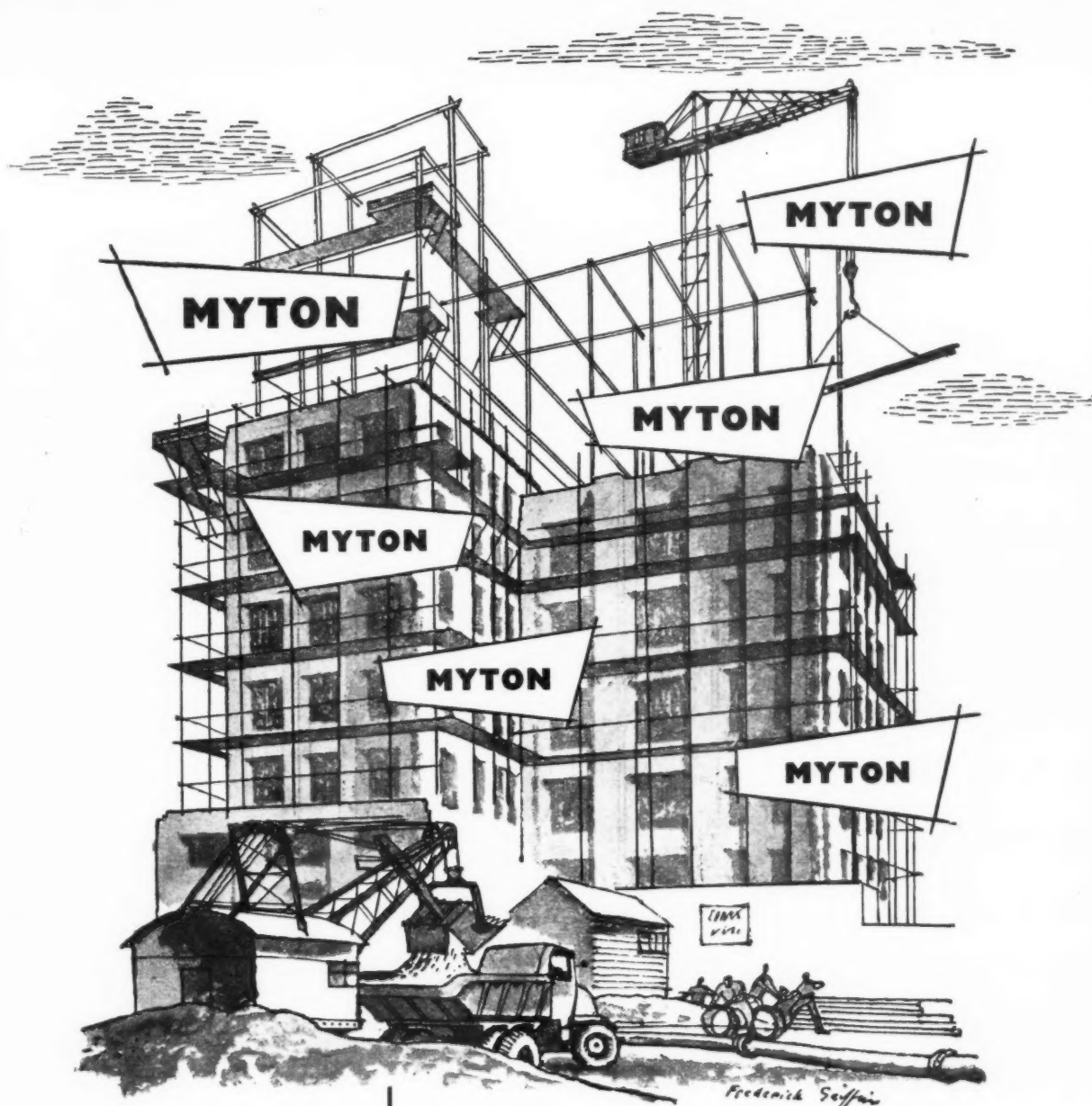
**WALLS and CEILINGS**—Sealing wallboard joints (with cover strips). Sealing glass bricks to door and window frames.

**DOORS and WINDOWS**—Sealing door and window frames to brickwork. Bedding window frames and window boards.

**SANITARY WARE**—Sealing baths, washbasins etc. to walls.







**You'll be seeing  
more and  
more of**

**MYTON**

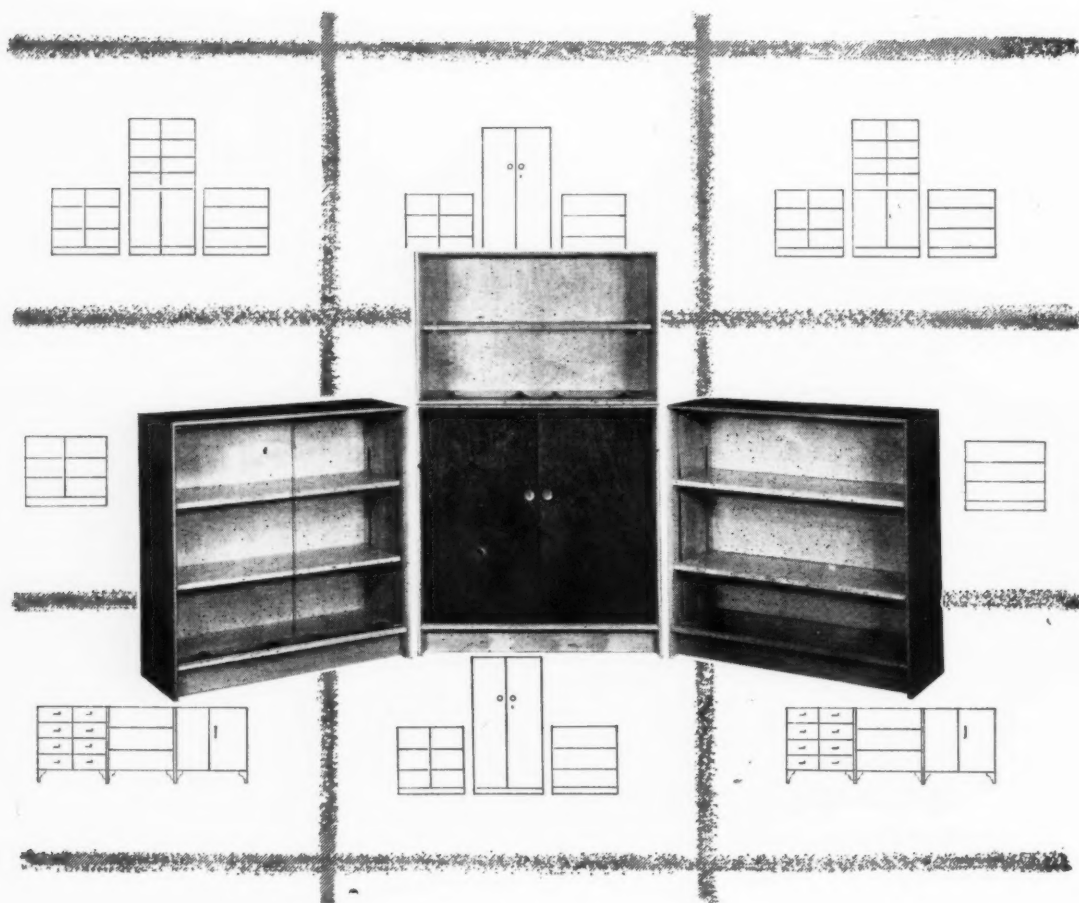
It is of considerable interest and significance that  
**MYTON LIMITED** are now a part of the **TAYLOR WOODROW  
GROUP OF COMPANIES**, with all the valuable  
advantages which automatically spring from membership  
of that vast organisation

**MYTON LIMITED Building and Civil Engineering Contractors**

*Now a member of the* **TAYLOR WOODROW GROUP**

**HEAD OFFICE: NEWLAND, HULL**

## **Kingfisher** **UNIT** **FURNITURE** *for Schools*



The unit furniture illustrated here is supplied to Birmingham, Warwick and other authorities. The range comprises cupboards, bookcases and open shelves, which can be used separately or as complete units.

Kingfisher wood nesting chairs are also supplied to many authorities. Further details available on request.



# Kingfisher

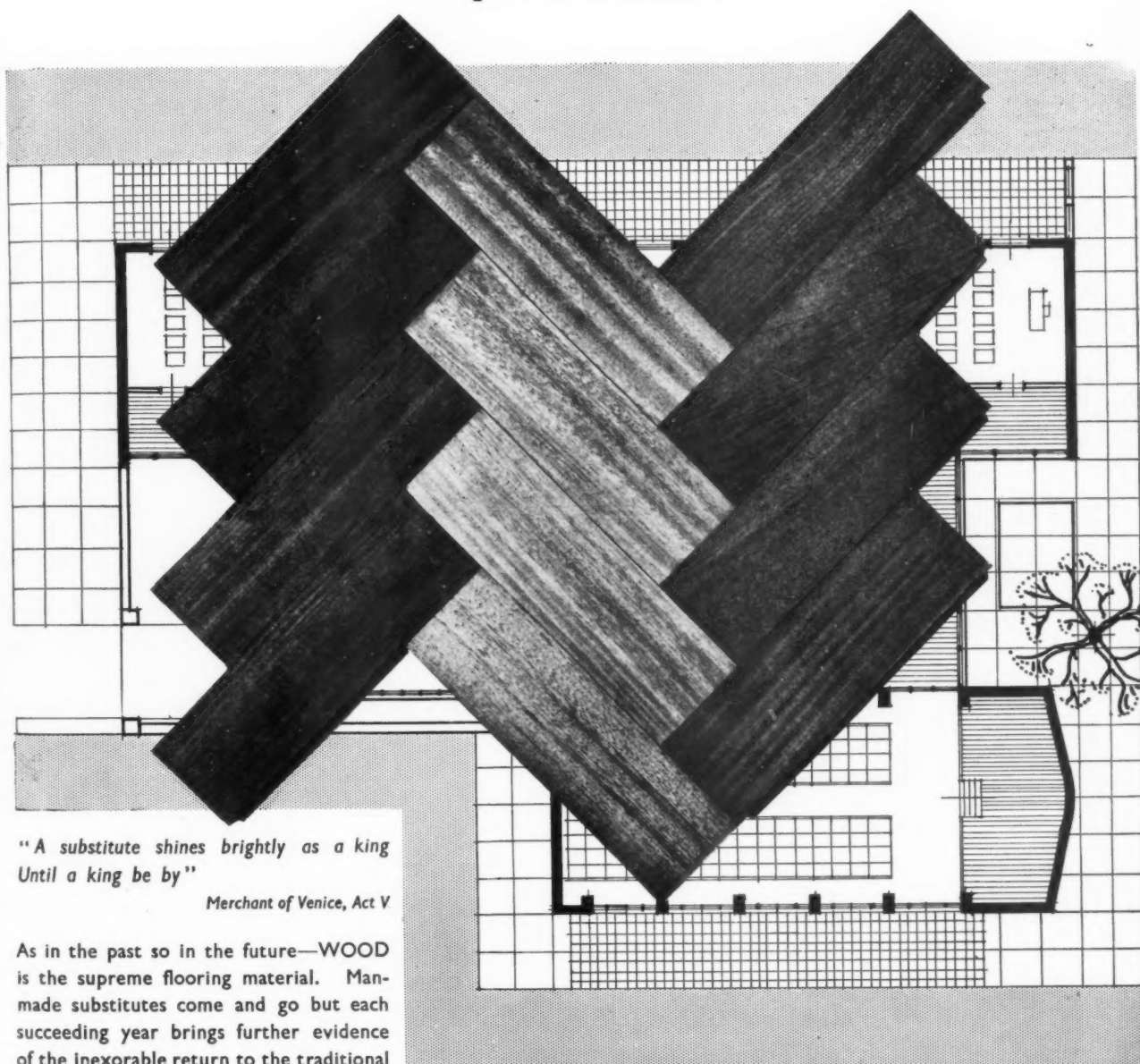
## UNIT FURNITURE



**KINGFISHER LTD • CHARLES STREET AND PHOENIX STREET • WEST BROMWICH • STAFFS**

Telephone: Tipton 1631 • Telegrams: Kingfisher, Phone, West Bromwich • London: 139 Knightsbridge S.W.1. • Telephone: Kensington 1331

# FLOORS for the future . . . by HOLLIS



*"A substitute shines brightly as a king  
Until a king be by"*

*Merchant of Venice, Act V*

As in the past so in the future—WOOD is the supreme flooring material. Man-made substitutes come and go but each succeeding year brings further evidence of the inexorable return to the traditional HARDWOOD for floors. Many excellent hardwoods are now available at moderate cost which combine BEAUTY, DURABILITY and COMFORT with ECONOMY.

## **SPECIFY—MADE IN ENGLAND**

*to ensure precision in manufacture, controlled moisture content and stability of the floor.*

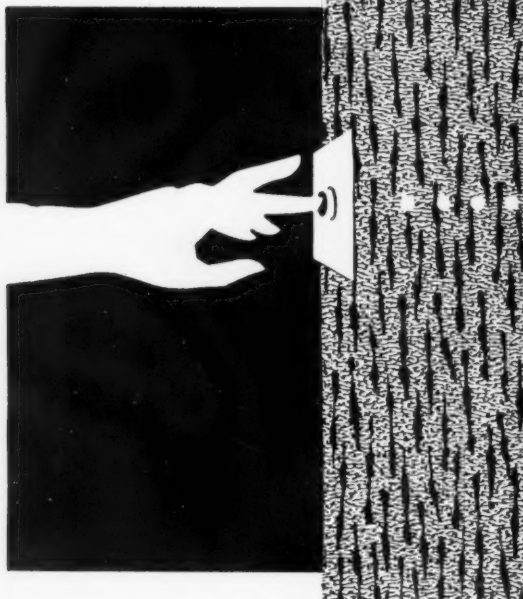
# **HOLLIS BROS. LTD.**

**LEICESTER • HULL • LONDON • BIRMINGHAM**



... 'coons use paws

sloths use claws



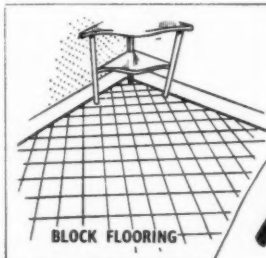
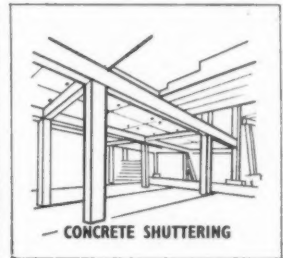
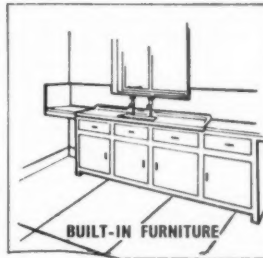
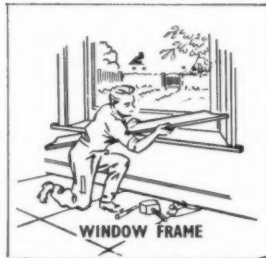
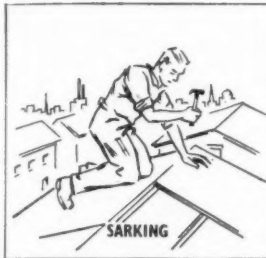
but lucky people use J & E Hall  
lifts and escalators

**J & E Hall**

DARTFORD KENT Tel. Dartford 3456

10 St. Swithin's Lane London EC4 Tel. MANsion 'House . 9811





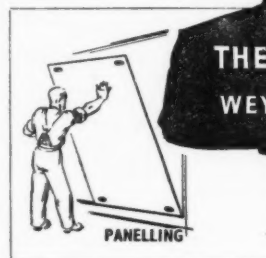
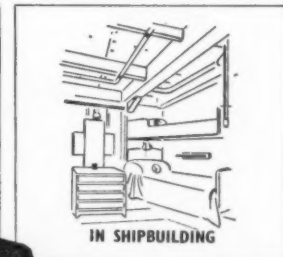
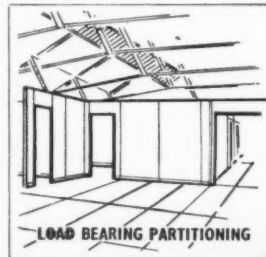
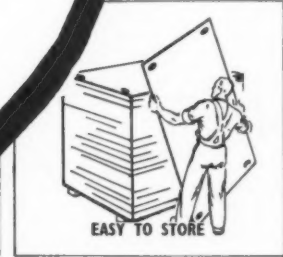
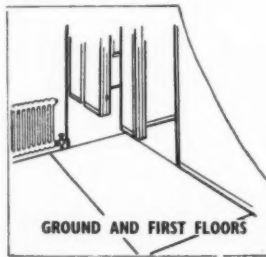
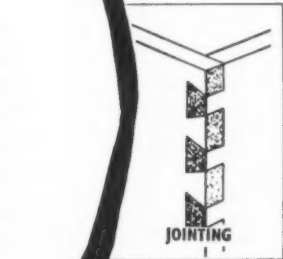
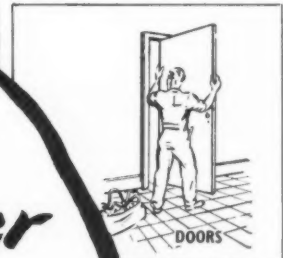
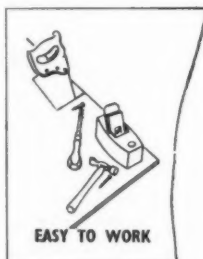
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SARUM CHASE, from a recent painting by Felix Kelly.



Painter of many famous portraits, Mr. Frank O. Salisbury lives at Sarum Chase in Hampstead. Ever since it was built in 1932, the house has had an oil-fired space and water heating system. The fuel is supplied by Shell-Mex and B.P. Ltd.

## AN ARTIST NEEDS A WARM STUDIO

*This famous painter's home has oil-fired heating*

**S**ARUM CHASE, the home of Mr. Frank O. Salisbury, C.V.O., the celebrated portrait painter, stands on a magnificent site on Telegraph Hill in Hampstead overlooking the heath. Its many large rooms include the artist's studio and a gallery hung with his works. In the hall are a number of fine frescoes representing the Saga of Life. Despite its size, however, there has never been any difficulty in keeping Sarum Chase warm. When it was built in 1932, one of its first visitors was King George V.

At that time the newly-installed oil-fired central heating system was some-

thing of a novelty. Today, 23 years later, the same system is still in use, and the whole house can be kept at a selected temperature for as long as required. Oil-fired heating is extremely simple to operate. Only a few minutes' maintenance is needed every few weeks. There is no stoking to be done—no ash to clear out. Oil burns cleanly, is easily stored, and presents no problems of supply.

This last factor is highly significant in view of the growing fuel shortage in Britain. Forced already to import millions of tons of coal a year, this country may well, by 1960, be faced with an 'Energy Gap' of 50 million tons.

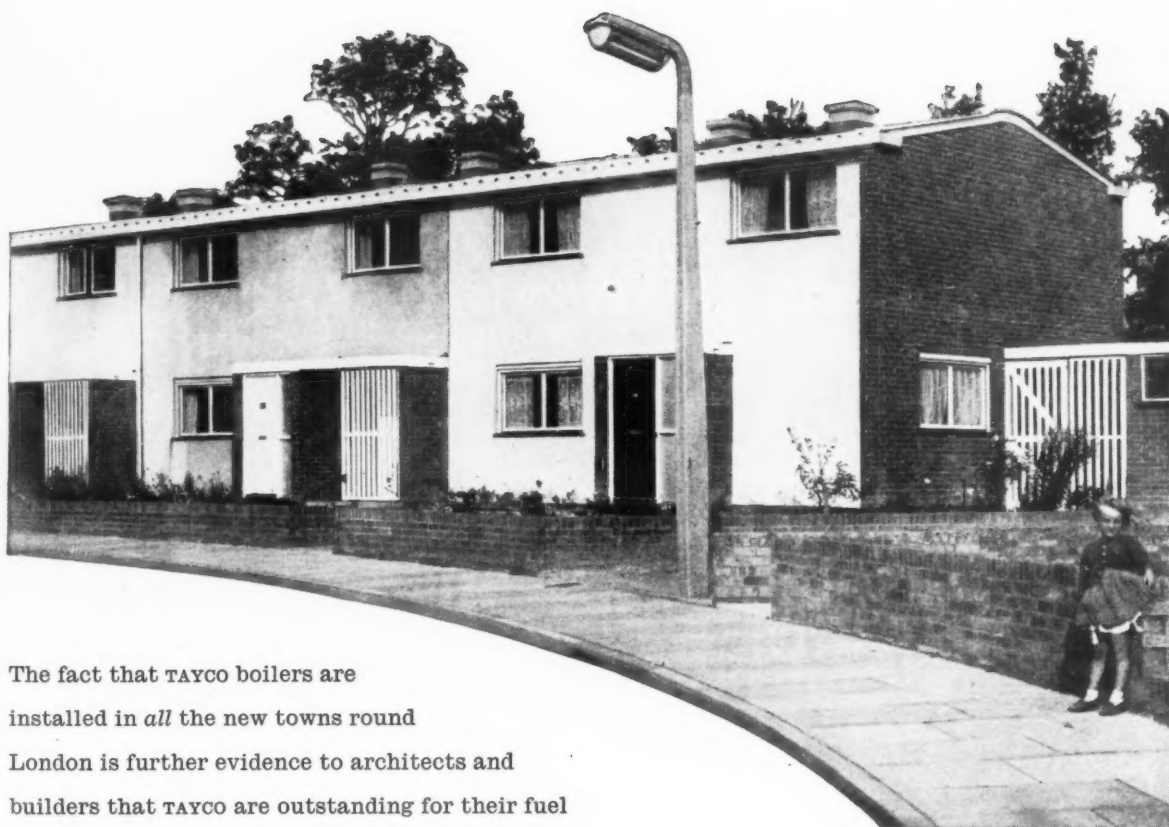
The seriousness of the situation has persuaded an increasing number of industrialists and property-owners to convert their plant to oil-firing, with all the many advantages that this would entail, and if you are designing or modifying any largish premises, you may find it well worth your while to consider this form of heating. Shell-Mex and B.P. Ltd. have had over forty years' experience in the handling of oil-fuel and in providing technical advice on its use. For further information, please write to Fuel Oil Dept. 3F, Shell-Mex House, Strand, London, W.C.2. This will, of course, place you under no obligation.

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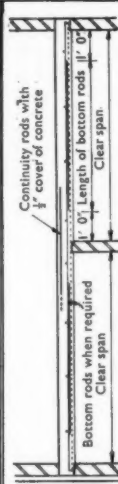
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**MAXIMUM CLEAR SPANS FOR SUPERLOAD OF 40 LB. PER SQ. FT.**  
(Allowance already made for self-weight and 20 lb. per sq. ft. finishes)

TABLE D1. — SLABS FREELY SUPPORTED		With rods		Minimum length to add to give adequate bearings for Hy-Rib sheets	Rod data—code used in table under "rods" heading
Concrete thickness	Hy-Rib alone	26G	rods		
3"	6' 2"	7' 0"	7' 7"	a1	Diameter:— a: $\frac{1}{4}$ " b: $\frac{3}{8}$ " c: $\frac{1}{2}$ " d: $\frac{5}{8}$ " e: $\frac{3}{4}$ "
3½"	6' 7"	7' 5"	9' 0"	a2	Spacing:— 1: 10½" crs. 2: 7" crs. 3: 3½" crs.
4"	7' 0"	7' 10"	10' 5"	b2	Lengths:—clear spans less 2' 0" (laid centrally)
4½"	7' 3"	8' 1"	11' 10"	e1	
5"	7' 7"	8' 3"	13' 3"	e2	
5½"	7' 8"	8' 5"	14' 4"	c3	
6"	7' 10"	8' 8"	15' 5"	d3	

**TABLE D2. — SLABS CONTINUOUS OVER TWO EQUAL SPANS**



Concrete thickness	Hy-Rib alone		With rods		Notes
	28G	Continuity rods	26G	Continuity rods	
3"	6' 11"	d2	7' 0"	d2	—
3½"	7' 8"	d2	8' 5"	e2	—
4"	8' 0"	d2	8' 9"	e2	—
4½"	8' 2"	d2	9' 1"	e2	—
5"	8' 6"	d2	9' 4"	e2	—
5½"	8' 8"	d2	9' 6"	e2	—
6"	8' 10"	d2	9' 9"	e2	—

FOR CONSTRUCTION DETAILS SEE DATA SHEET C

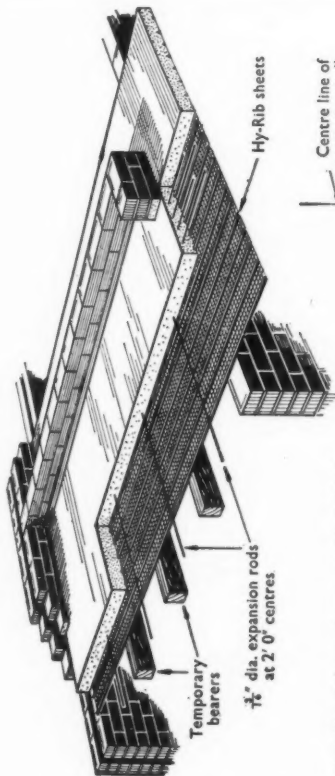
Notes on the construction of Hy-Rib slabs and particulars of Hy-Rib sheets are given on Data Sheet B

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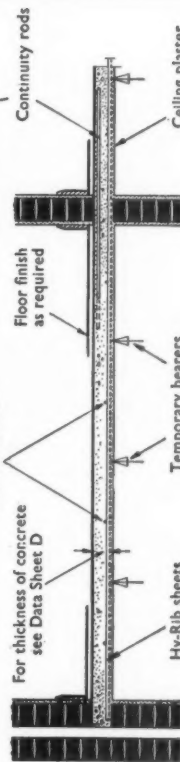
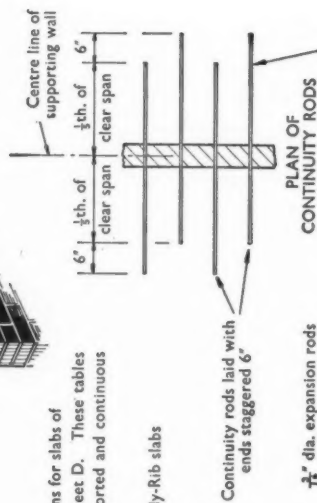
Data Sheet C

Telephone: WATERLOO 6922



For tables giving maximum spans for slabs of various thicknesses see Data Sheet D. These tables provide for floors simply supported and continuous over two spans.

Notes on the construction of Hy-Rib slabs are given on Data Sheet B



**CROSS SECTION**

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## HY-RIB FOR CONCRETE FLOORS OF FLATS

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Data Sheet D

Telephone: WATERLOO 6922

Meet Ginger Johnstone, Form 2a.

Though she's not so hot at the moment. Through prayers and Geog, she still had her cycling glow. In Lat she began to feel chilly and now she's so frozen from toes to fingertips, Alg is quite lost on her.



Now meet Ginger in high summer ; but please don't shake her. She dreamed through Geom, drowsed through Arith and now she's gone right off in Eng. The person who *ought* to be shaken by this state of affairs is the architect who designed the school without Fibreglass insulation.

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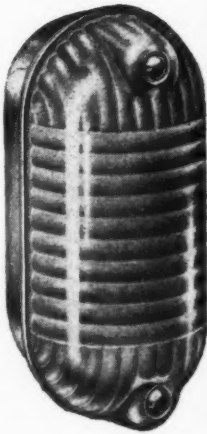


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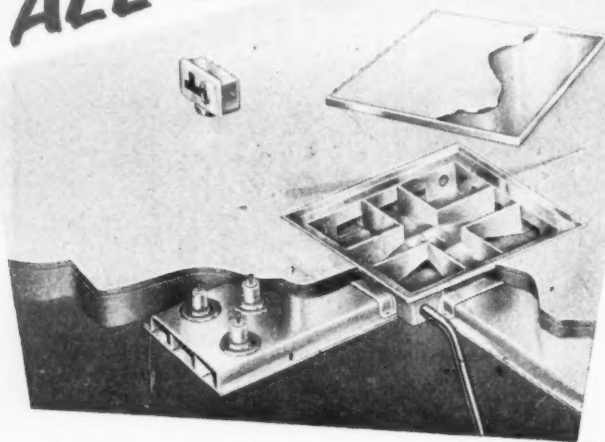
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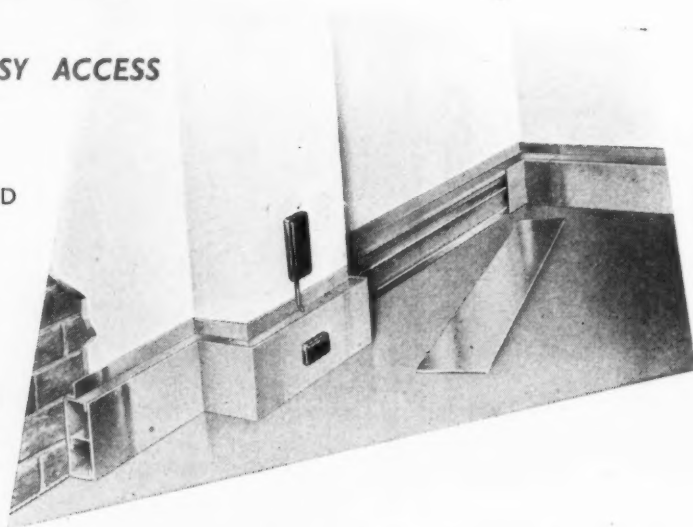
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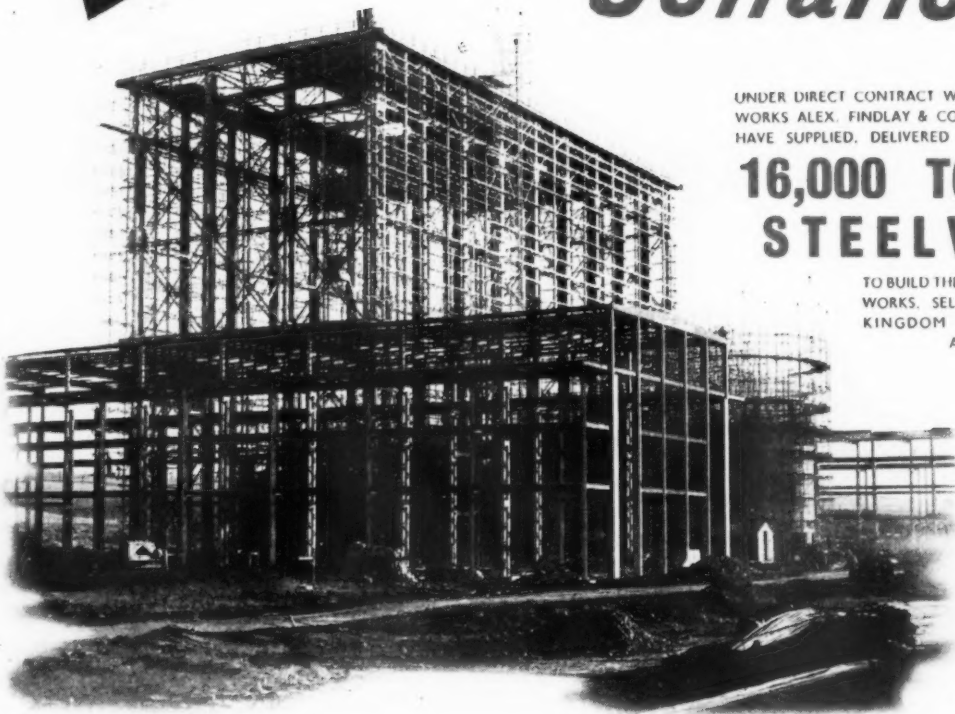
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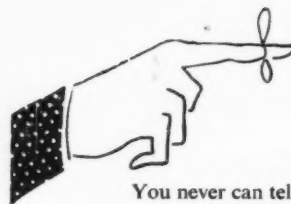
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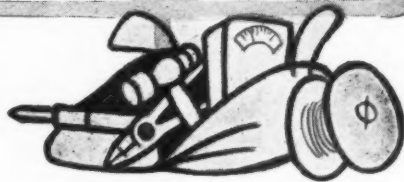
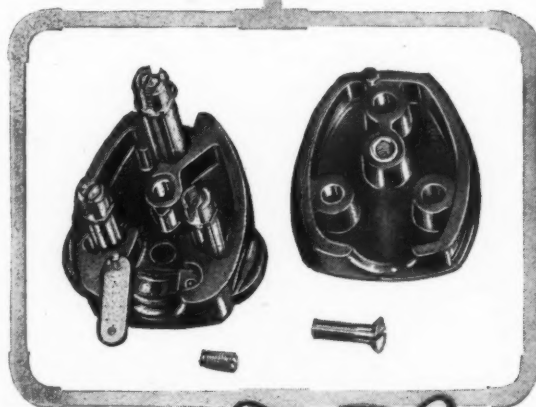
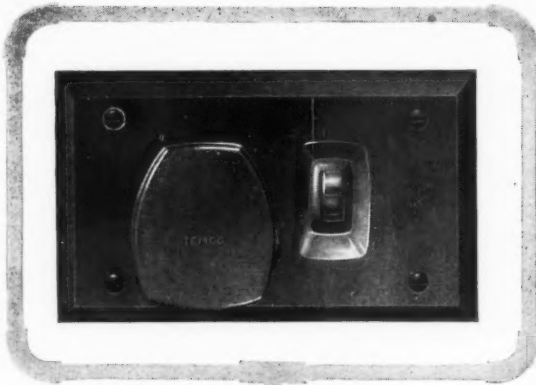
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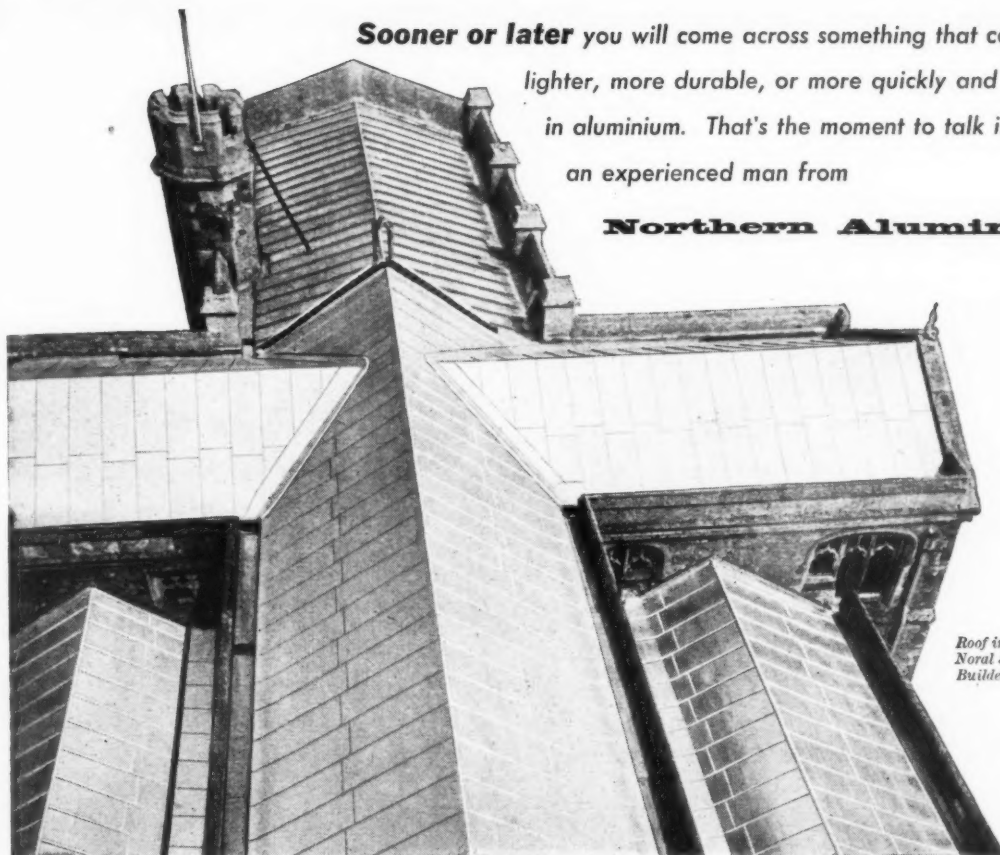


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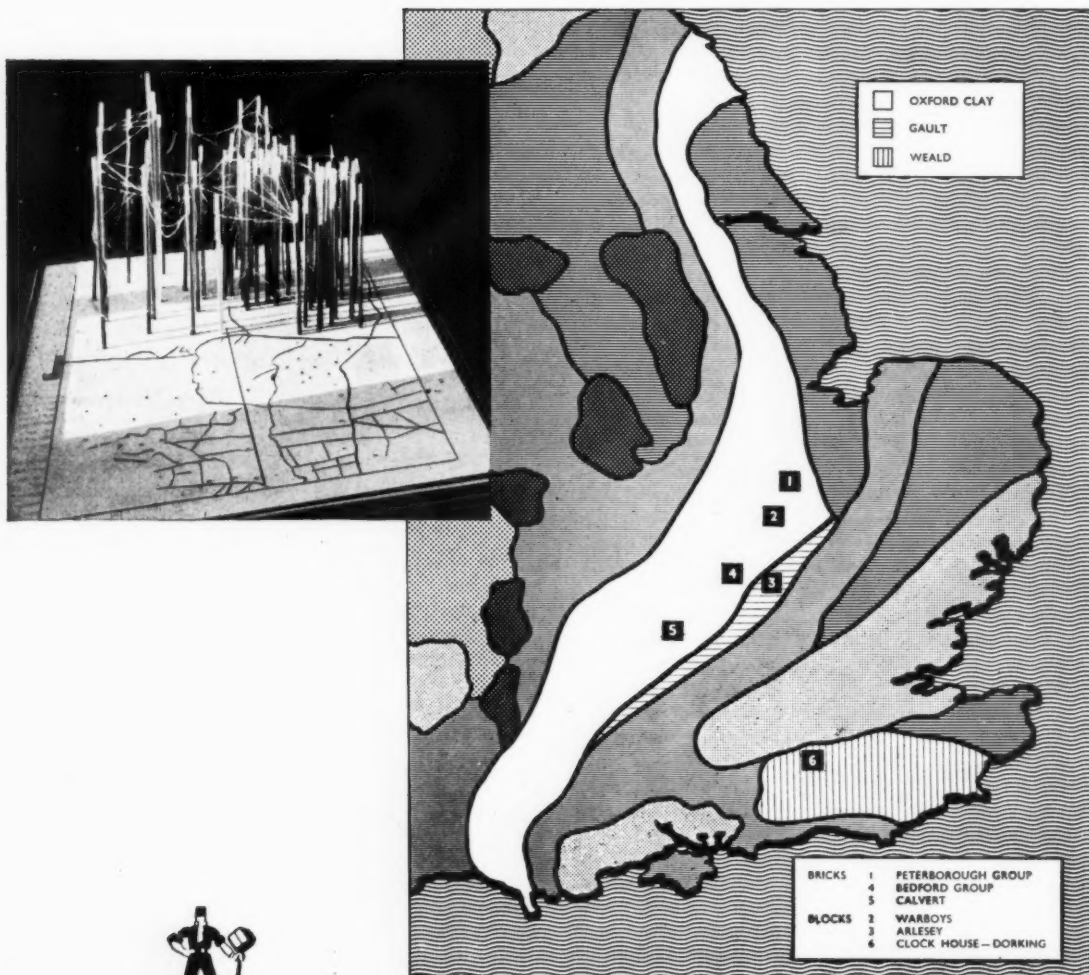
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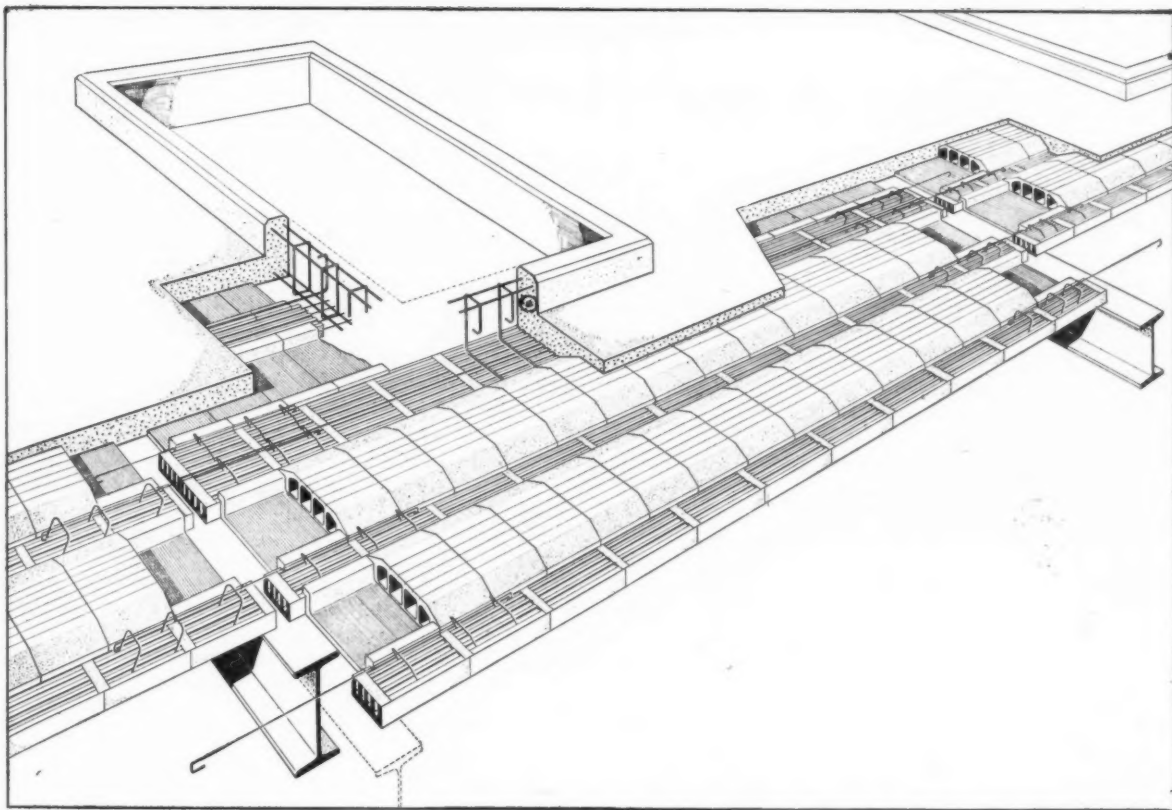
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Siscomatte is extremely easy to apply—far easier than ordinary eggshell finishes. It may be brushed or sprayed and requires no working out. Siscomatte dries quickly and evenly—it's touch-dry in about four hours, hard overnight.

Siscomatte has been formulated to produce a velvet-smooth surface which is simple to keep clean, tough enough to be scrubbed and to give maximum resistance to detergents.

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Siscomatte is made in a range of 30 selected colours.

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Siscoglow is a *transparent* paint—not a varnish—and is applied *over* Siscomatte on all woodwork. The result is an extremely attractive subdued gloss finish almost impossible to obtain by any other method.

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This "pearl" finish is quite as practical as a full gloss—it's hard, durable, and doesn't encourage finger-marks—yet it's more restful to the eye. This new decorating scheme, using Siscomatte and Siscoglow, has been named the "Plain and Pearl" effect.

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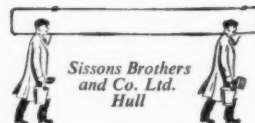
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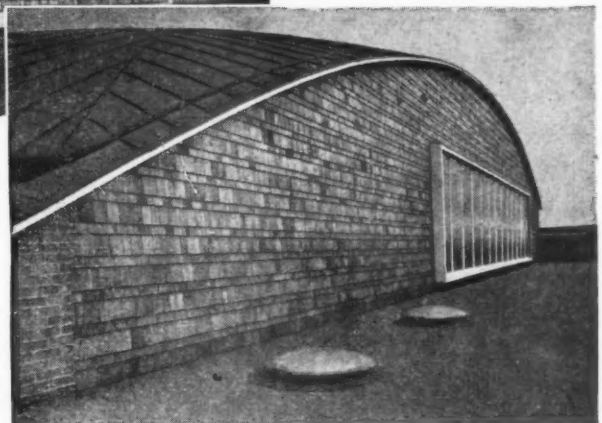
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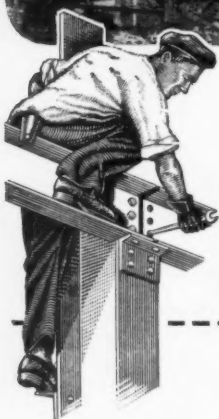
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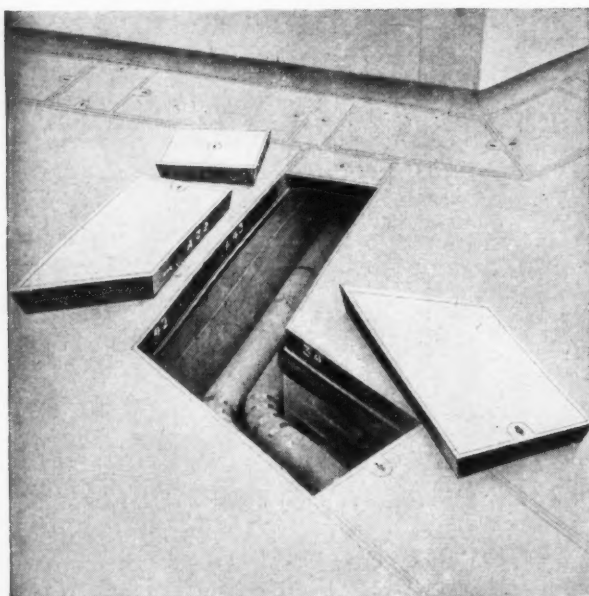
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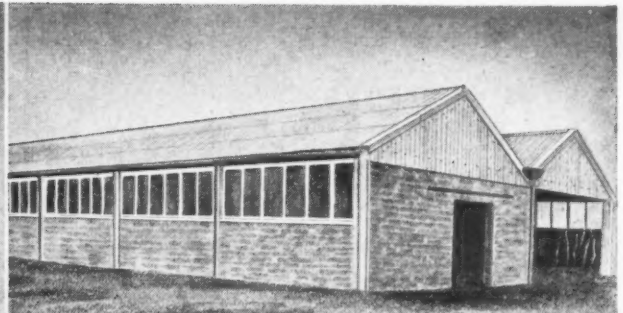
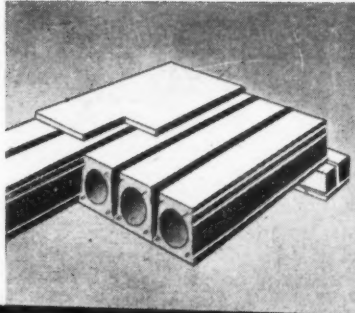
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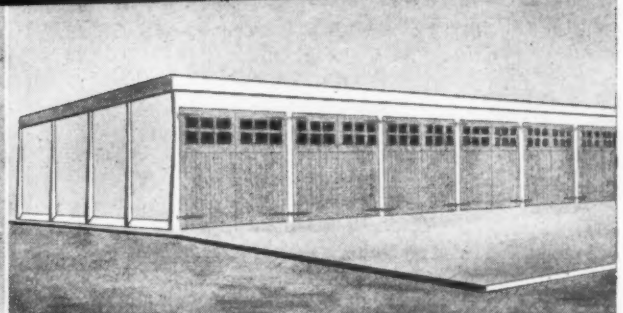
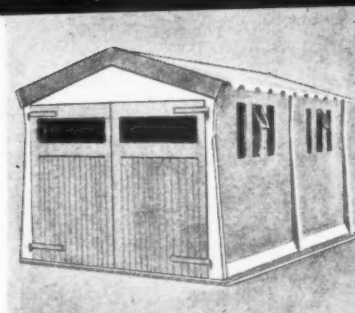
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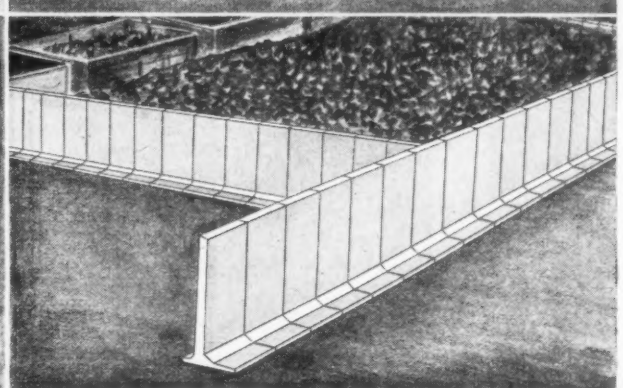
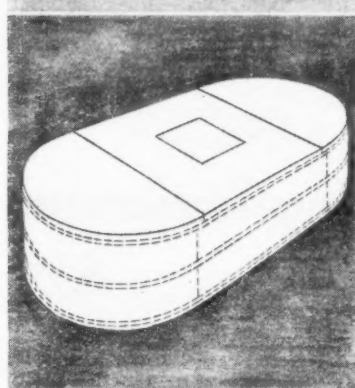
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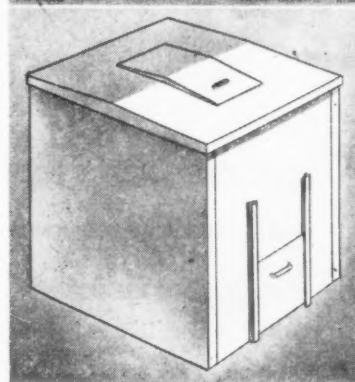
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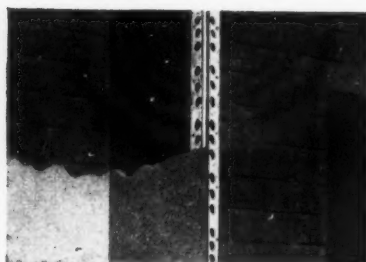
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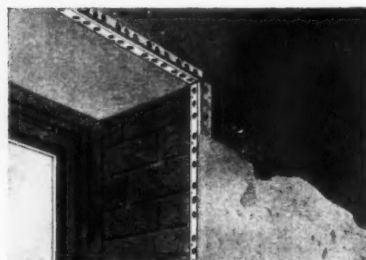
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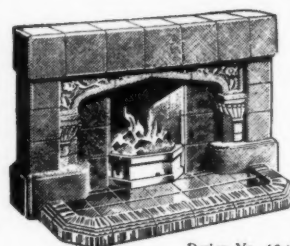
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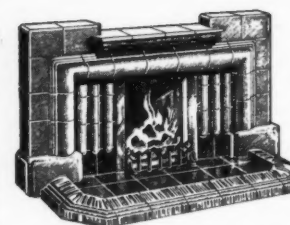
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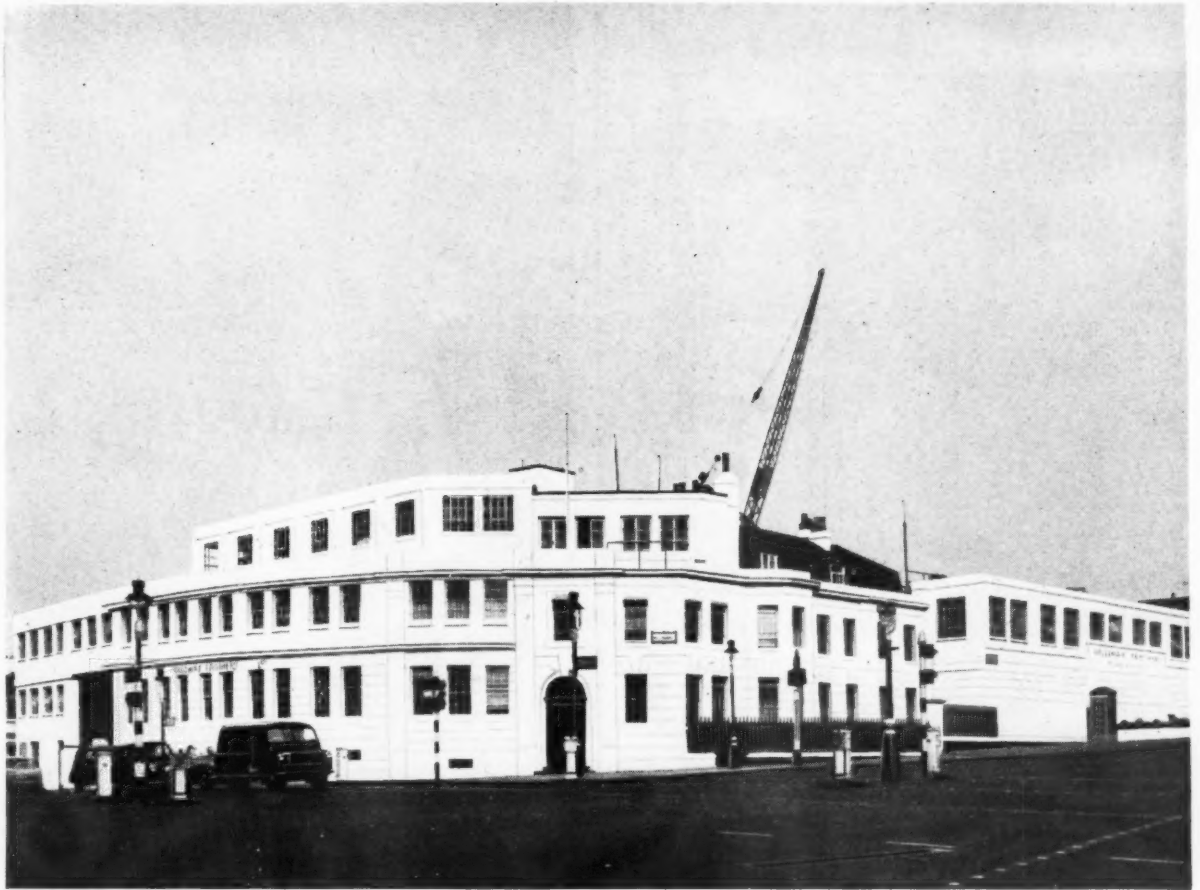
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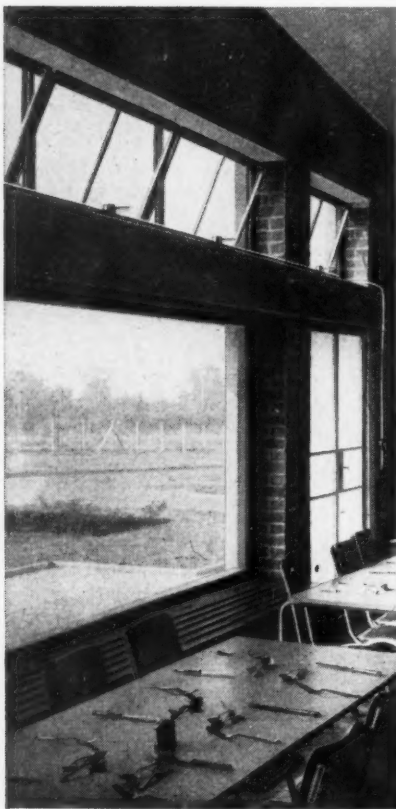


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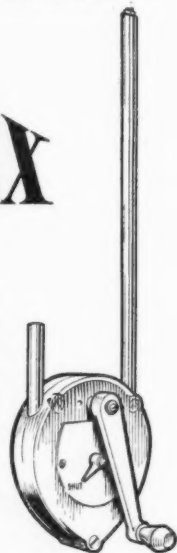
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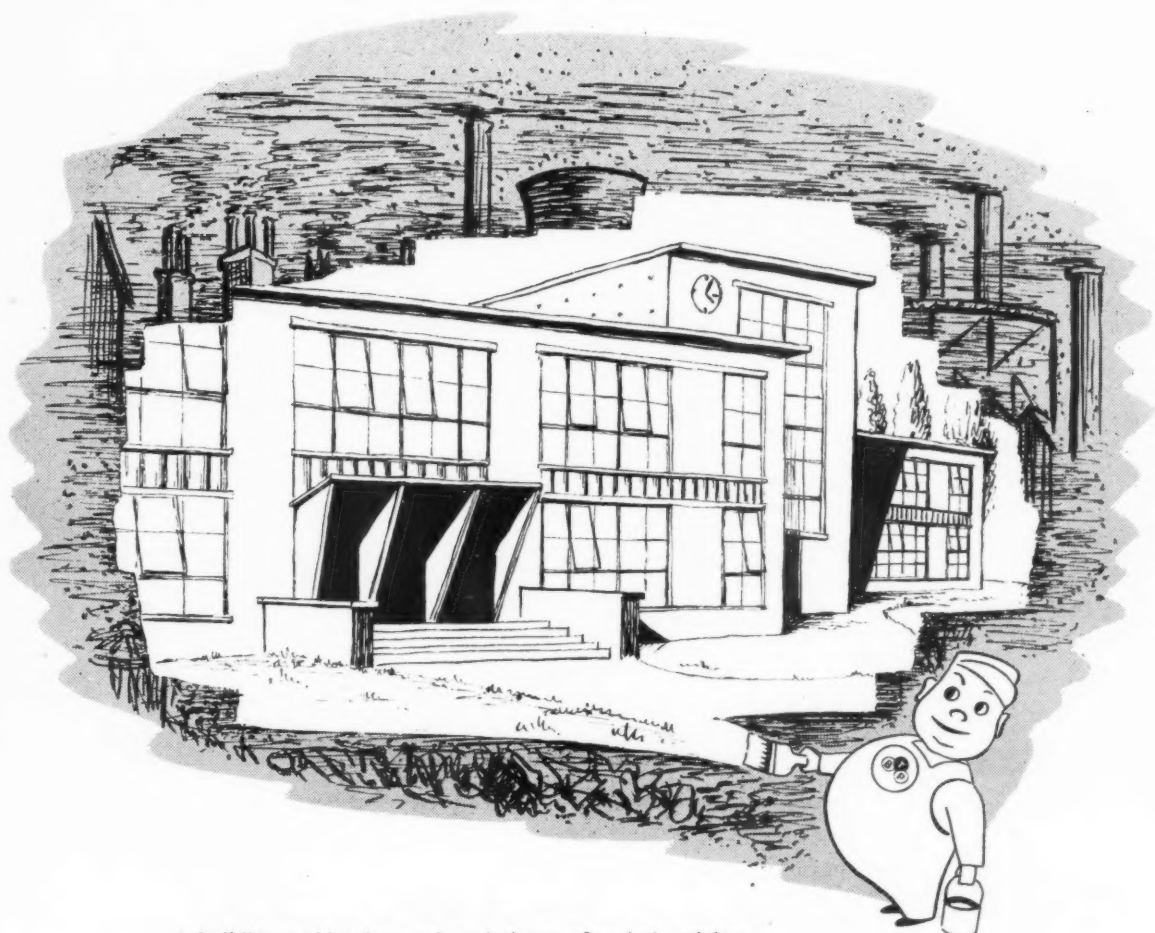
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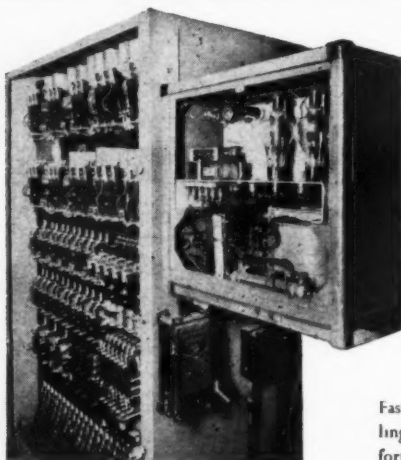
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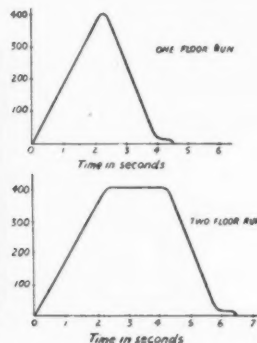
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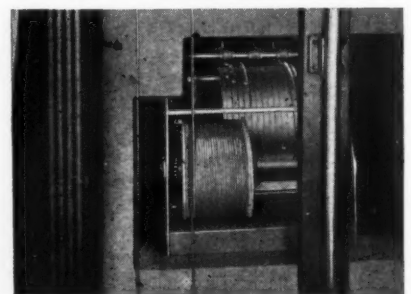
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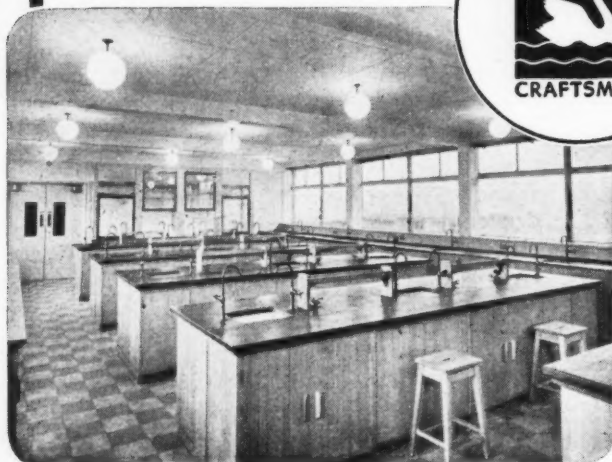
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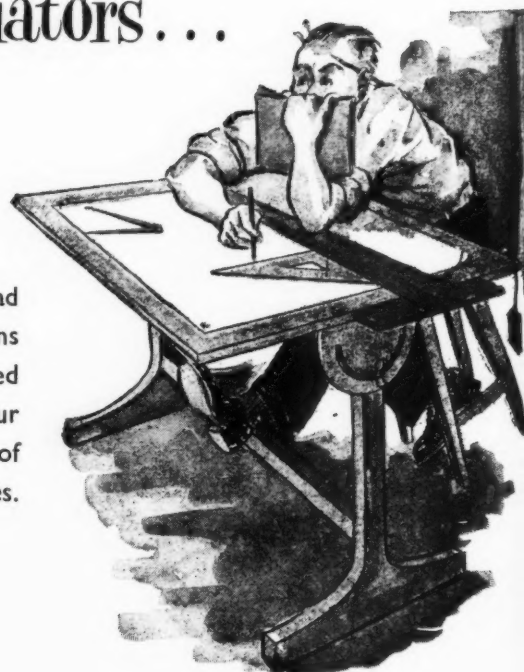
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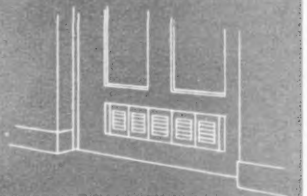
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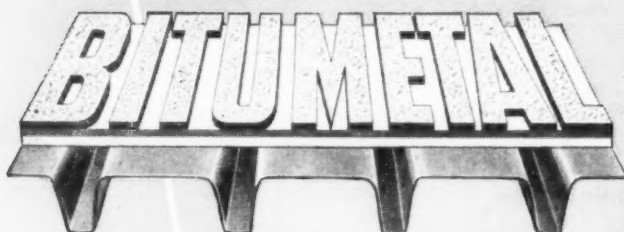
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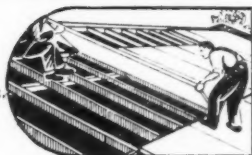
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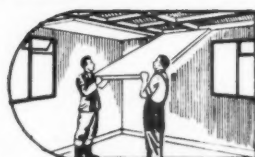
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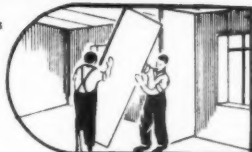


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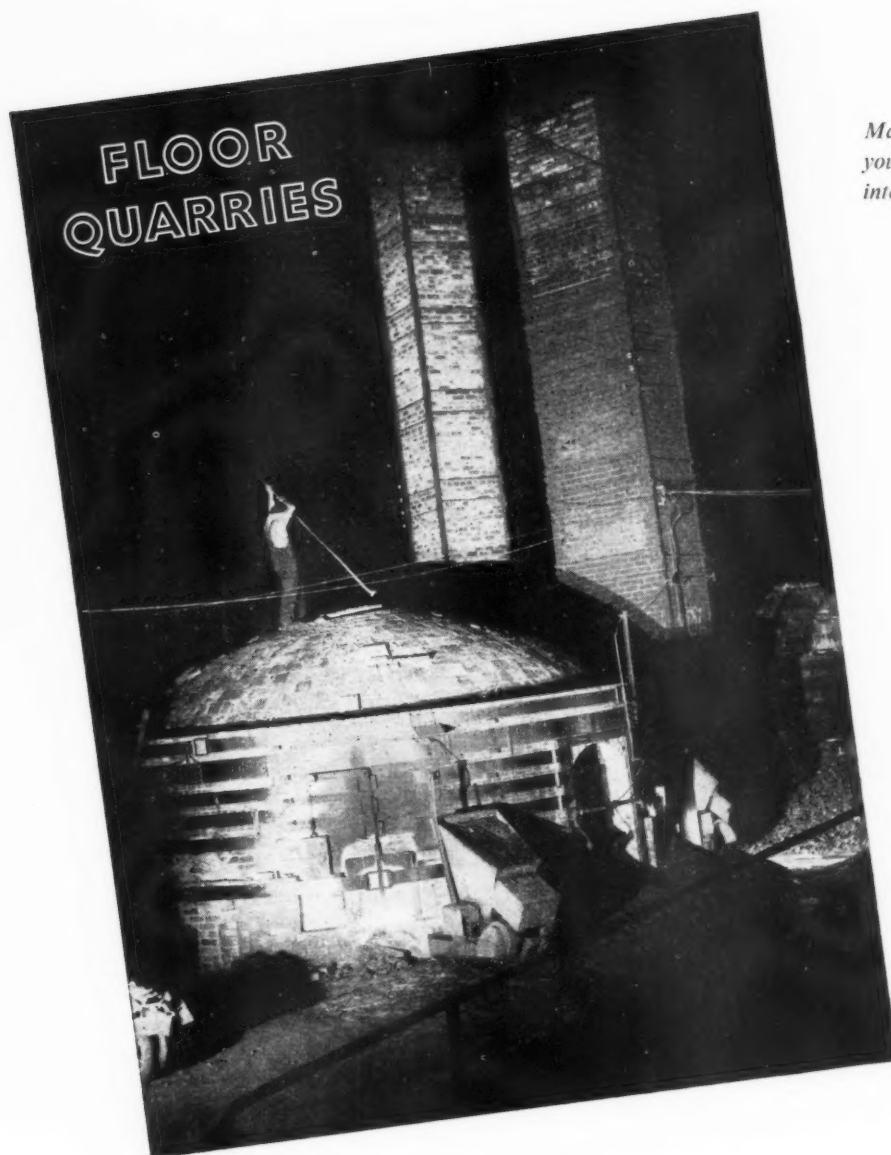
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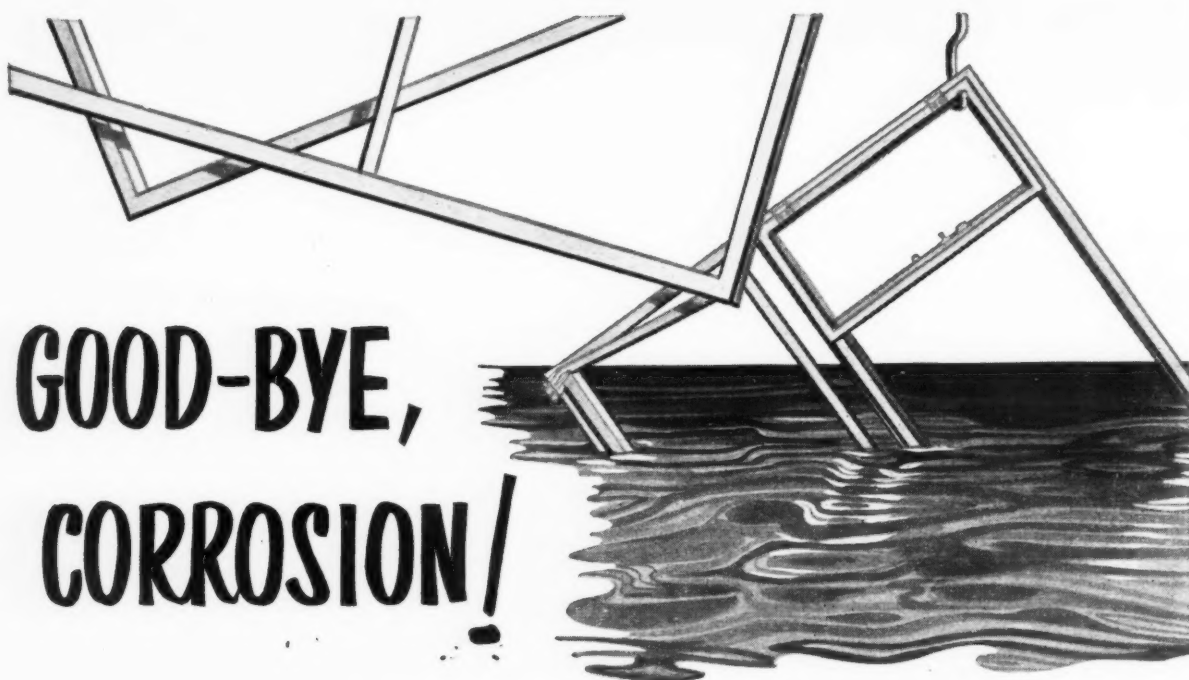
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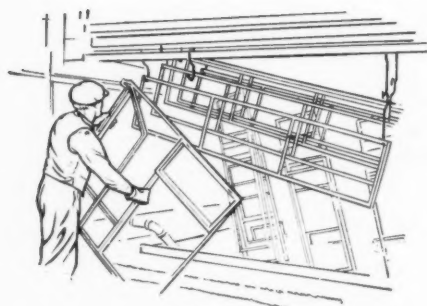
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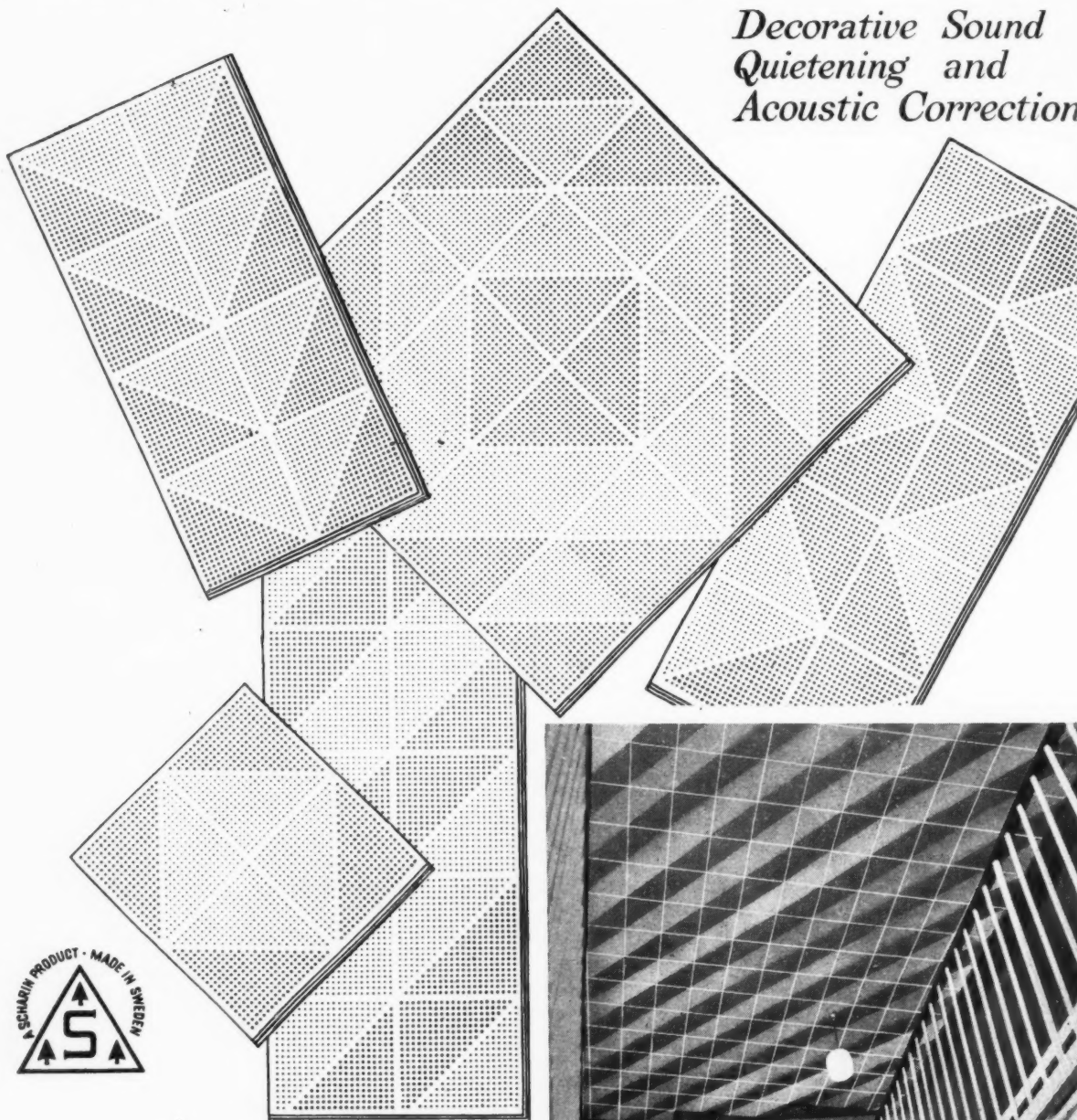
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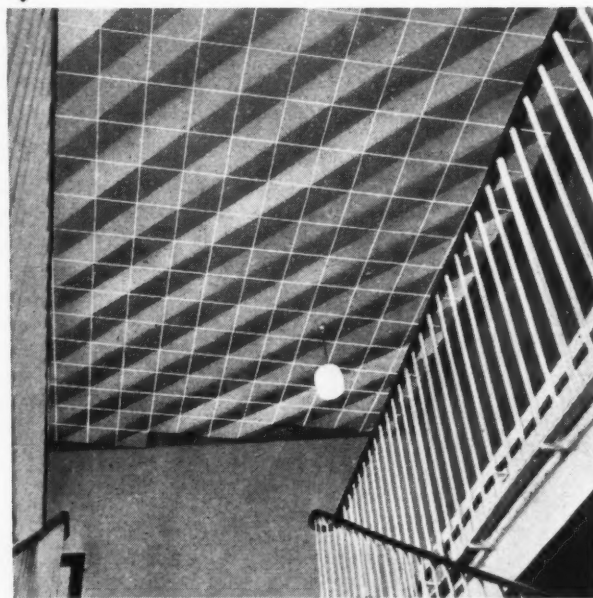
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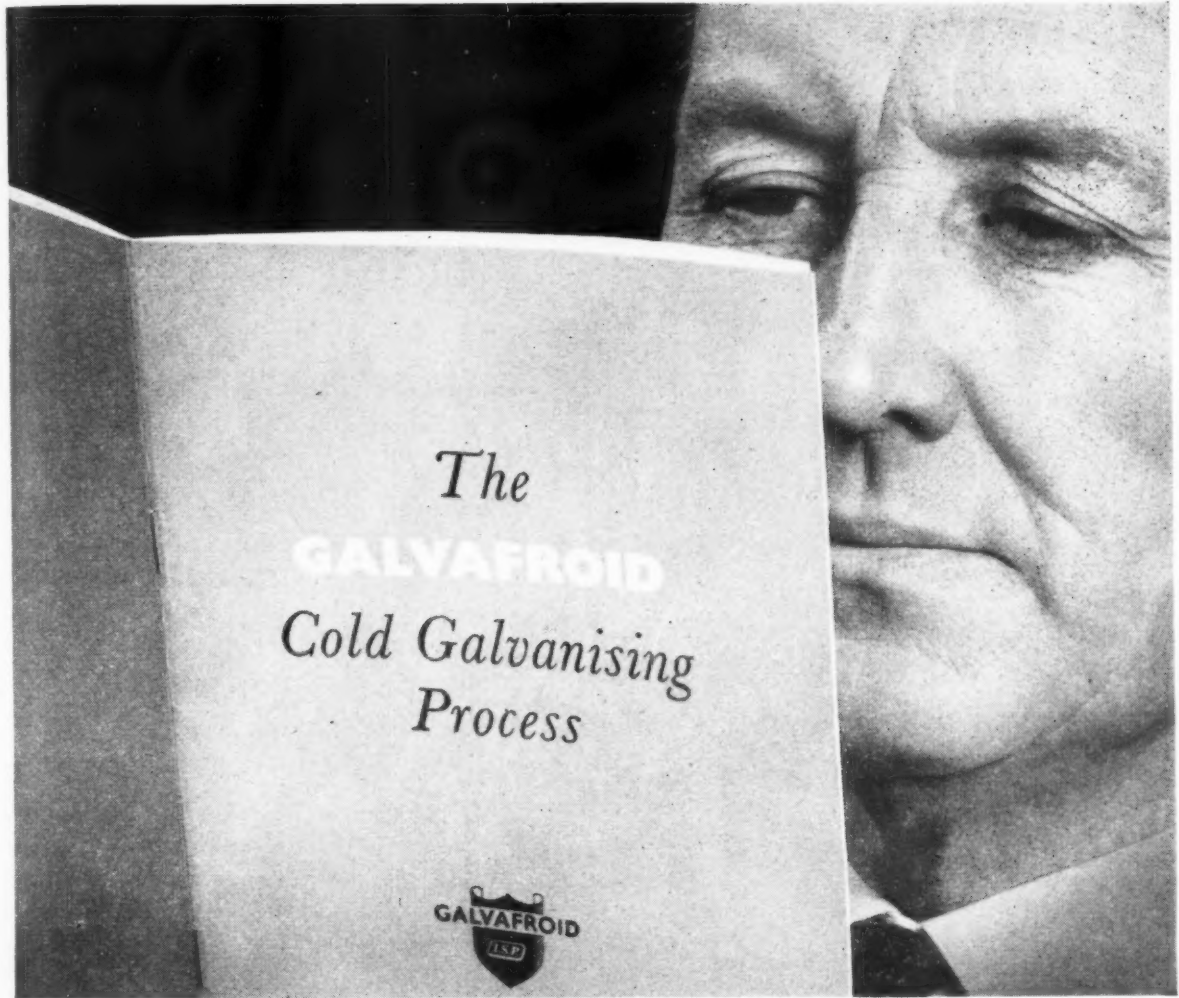


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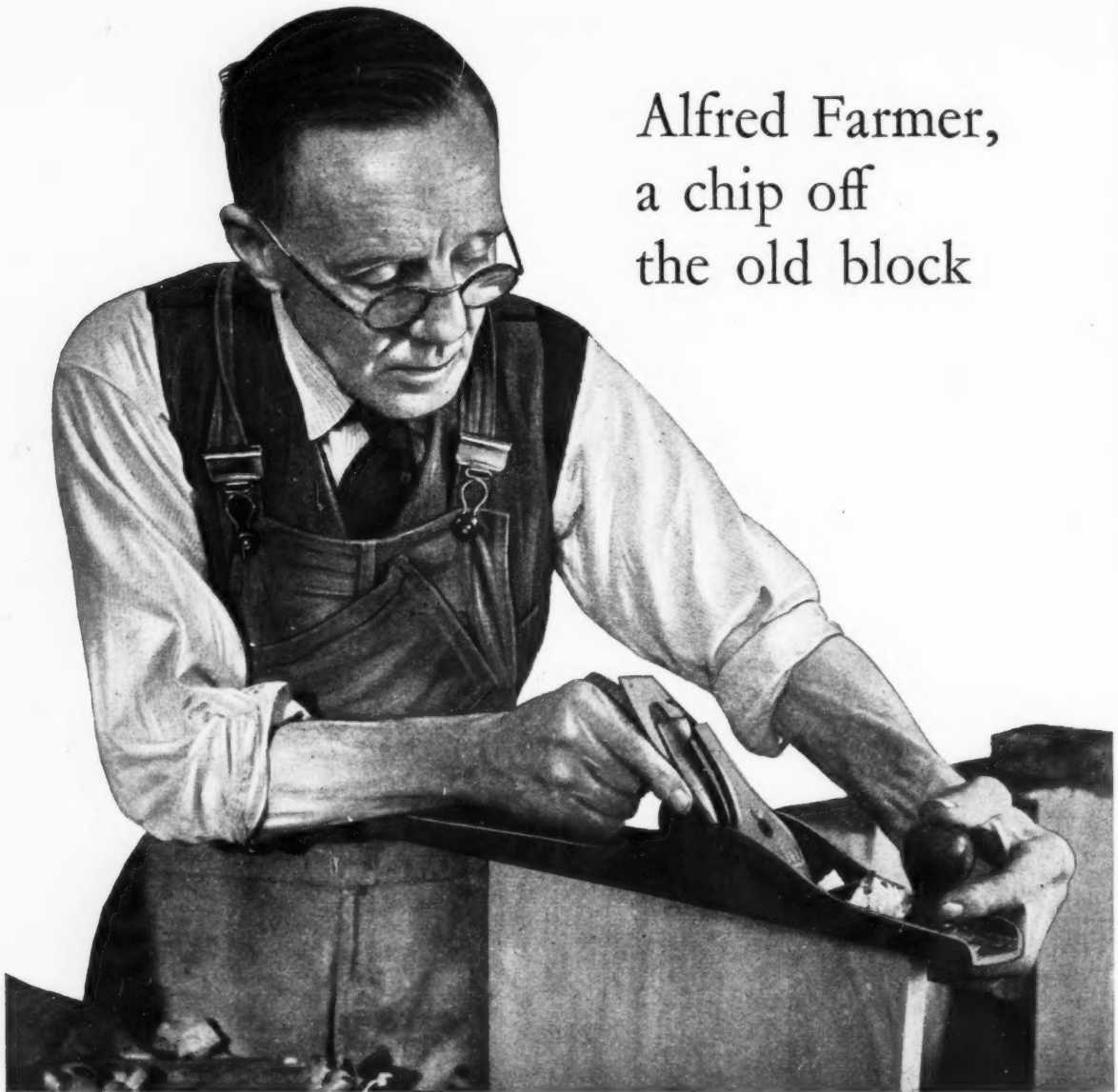


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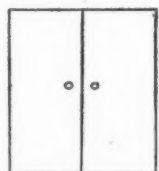
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## THE ARCHITECTS' CONFERENCE

If you are among the few hundred architects attending the British Architects' Conference at Norwich (from May 30 to June 4) we hope you will find this special issue useful. And if you are not going to the Conference we hope that Ian Nairn's brief survey of this remarkably livable-in, tourist-neglected city will tempt you to see it for yourself, or remind you of pleasures already discovered there. We have not given you a street-by-street tour, and if you go to Norwich you will find out why. In a short time you will feel very much part of the place—so much so that you will prefer just to wander, without guide-book in hand, through the market, the alleyways and the closes. You will want to forget history, because it is not displayed in isolated spots that you have to trudge to Subtopianwise; it is all around you in Norwich, and you will enjoy it as Townscape before you think of looking up dates, designers and who-slept-where. We ought, perhaps, to have published a map,\* so that conference visitors could trace their way back from agreeable ambles to the hard facts of "Architectural Economics"—the theme of the conference discussions. But we feel that the compulsion of conscience, stimulated by the JOURNAL's cost campaign of the last 18 months, will guide architects into the lecture hall. They can, incidentally, get their minds warmed up for discussion on the important subject of cost-planning by reading the quantity surveyors' article in this issue, and the comments in next week's JOURNAL on the conference papers.

\* Recommended: Jarrold's single-sheet *ABC of Norwich* (1s. 6d.); but only to be studied in a draught-proof room. Not on the heath, brother!



## WHAT TO LOOK FOR IN

*Norwich is the last English city to be a long way from anywhere. Ipswich 42 miles, Bury St. Edmunds 40, Lynn 43: a journey through some of the deepest—and some of the duller—countryside in England; no hills, no horizon, few parks, few towns and innumerable hard-bitten villages. In the eighteenth century it was the third largest town in England, after London and Bristol, and that has added urbanity to its self-sufficiency and separateness. It is now perhaps the only big English town to keep this mixture—to be an industrial provincial centre harnessed to an agricultural rhythm: the urbe-in-*



## AN ARCHITECTS' GUIDE TO THE CONFERENCE CITY

BY IAN NAIRN

Photographs by Sam Lambert



Left, the view from Mousehold Heath, the finest civic reception any city could give to an architect. A view that really looks as though several thousand people wanted to live and work together. Cathedral and city hall, churches and factories combine harmoniously because they are built honestly side-by-side with a sense of being part of something bigger than a set of unrelated individual buildings. This is a *city*, not a bit of zoning. Above, Norwich from Thorpe Station—the way you *must* see it if you come from London by train: a confused mess of chain-link fencing, No Entry, No Waiting, fragments of a car park, fragments of a bus station; English visual muddle-headedness at its worst. One picture shows a collective creative act, the other shows collective annihilation; the pattern of these extremes working together recurs all over Norwich: they will dog every walk you take.

# NORWICH

*rus that permitted the subsidiary idea of the rus-in-urbe. Today the other big cities have the urban amenities but not the separate identity: the other rural centres have the sense of place but not the urbanity. On the one hand Bristol is almost anonymous, on the other Ipswich is a huge rural market looking for a town centre. Perhaps the finest thing about Norwich is that living there is something positive, not another slice in an amorphous conveyor-belt of existence. You may thrive on it or be stifled by it, but you can't remain indifferent to it.*

IN

Edmunds  
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# A CITY OF TOWNSCAPES



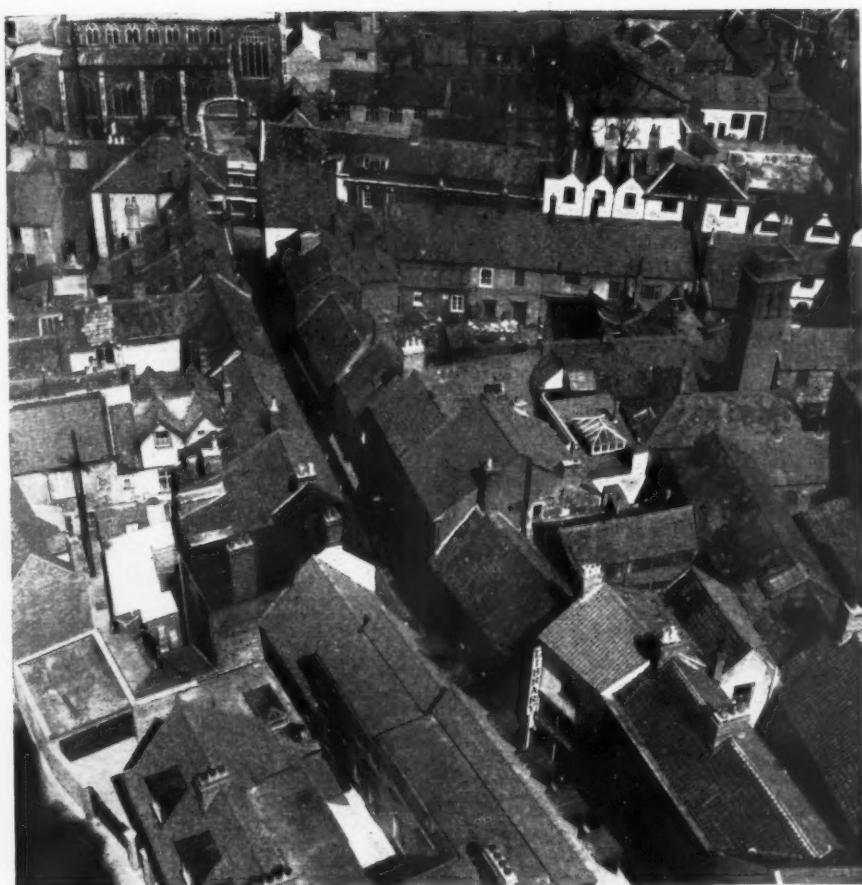
Among English cities Norwich is a pedestrian's and cyclist's paradise. The lanes are so narrow that only a few brave small cars can get through, and there is an incomparable network of alleys. Best of all is the system between the Market Place and Castle meadow—a central pedestrian axis, Davey Place (left), with alleys running off it. No such felicity occurs on the outskirts—the usual suburban pattern of road and kerb and strip and footpath and strip and front garden (below). Hygienic, but is it worth coming to see and walk along?



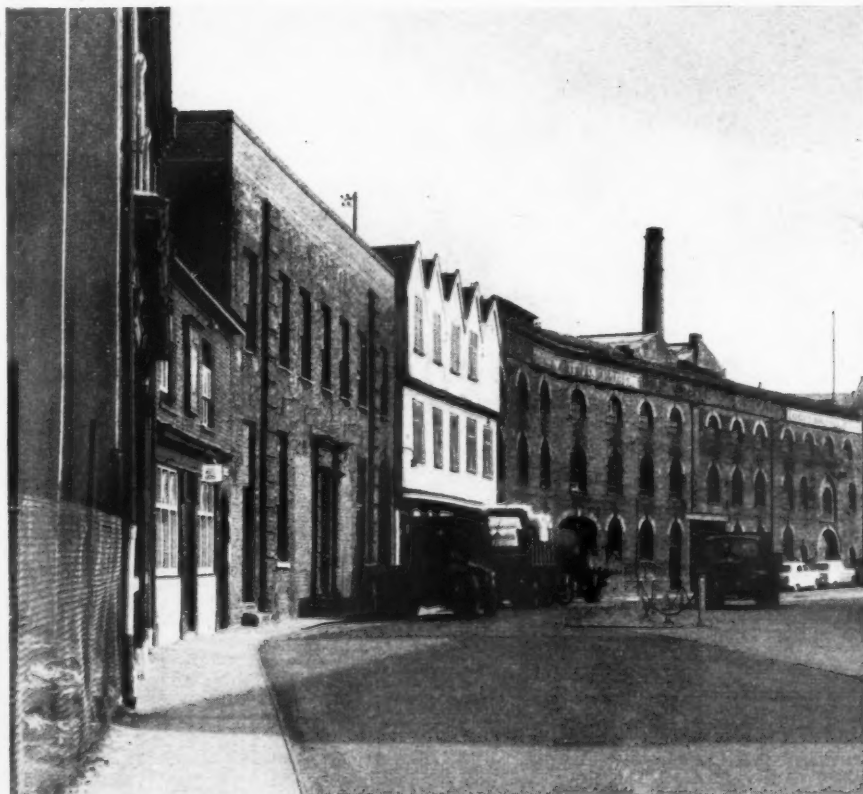
The whole area north of the river—Coslany—was, before the war, an incredible mixture of housing, shops, churches, chapels and factories. Now, with bombing and clearance, only fragments remain. This view, left, shows St. George's Colegate, Georgian houses beyond, a factory beyond that. It is framed on the right by a medieval half-timbered and flint house, on the left by the wall of the multi-storey early twentieth-century Norvic factory. We whimper about our new towns not having life, and artily try to re-create it, when the answer is lying around in towns like Norwich for anyone to use . . . . . but not in Norwich. Below, Coslany's rebuilding: the old is derelict, the new is mean and messy.



## NORWICH GUIDE



Left, the roofs of Old Norwich—the area north of the market place seen from the City Hall tower, a magnificent place for views. The richness and complexity are self-evident; Below: the backs of New Norwich; multiple stores in St. Stephen's Street, rebuilt after bombing. Complexity indeed (think of all those working drawings of drainpipes), but chaos instead of instinctive pattern, sterility instead of a living city.



Sometimes townscape can turn into high tragedy. There is something Sophoclean in the curve of Coslany Street, left, with the 1720 brick merchant's house gone to decay, the white gabled and plastered Tudor house, and the big Victorian iron works next to it. It is only partly association: it also comes directly from the contrast of forms and colours: a good source for arguments among the *avant-garde*. But never mind the arguments; go and see it at its best, at sunset—and wear a blinker on your right side, because on the other side of the street (below) is today's comment on nobility; a hulk of brick set back in isolation.





## A CITY OF TOWNSCAPES



Five more aspects of the incredible charm of the centre of Norwich. The market place, above, from the top of the City Hall tower looks like an illustration from *Italy Builds*. The stalls are permanent, the produce cheap: shrimps and prawns are a bargain. For this market we have to thank Robert Atkinson, who designed the layout when the City Hall was built in 1936.

The Cathedral Close is a segment of country in the middle of the city: still with only two gates, still running down to the river as fields and gardens. Not even Salisbury can rival this, either in the view of the Cathedral from the other side of the Wensum, below, or in the view of Pull's



ferry, top of opposite page, once the Watergate (and the terminus for the Caen stone brought for the cathedral in 1100). J. Fletcher Watson has his office there: if you look at Bawdeswell church on page 554 you may well think that working in one pretty building inspires you to build others.

The medieval street of plastered houses, top right, exists as a show piece and "preserved" (antique shops) in Elm Hill. Quite unaffected and genuine, and much nicer, is the Cathedral Close (right). This is a cul-de-sac and takes some finding—it runs north off Lower Close—but is well worth it.





## NORWICH GUIDE



Norwich breweries—right, startling polychrome for Steward & Patteson's Pockthorpe brewery in Barrack Street. Built about 1900, the name of the architect is apparently lost for ever: it has enough life to be by G. J. Skipper (see page 553). Extreme right, Victorian vernacular done up cap à pie in gold and maroon for Bullards' in Coslany Street, a splendid job.



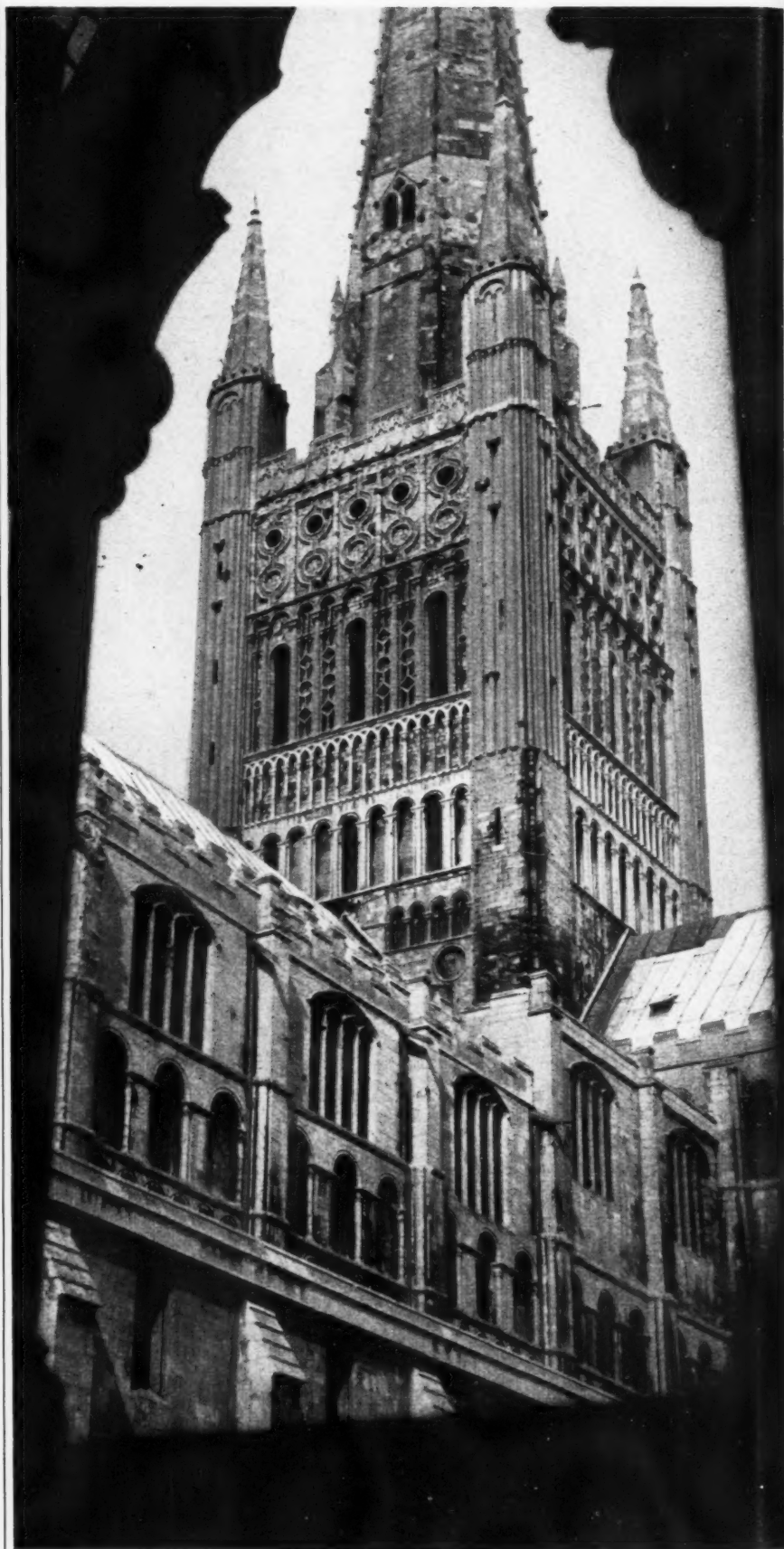
# NORWICH GUIDE THE CATHEDRAL

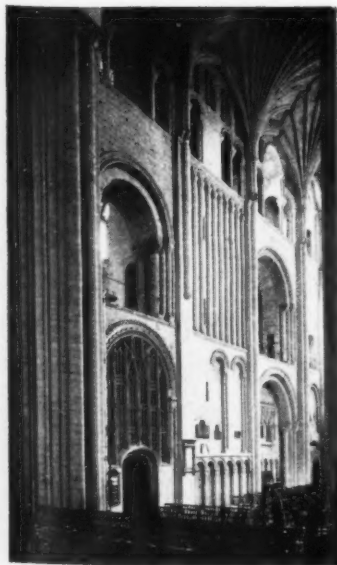
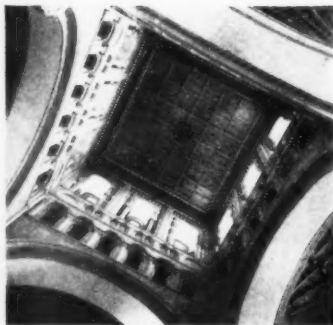


Norfolk has over a hundred round church towers: this is now the only complete one left in Norwich, at St. Mary Coslany; with triangular belfry heads and baluster shafts it may be pre-Conquest. They were presumably a result of the lack of good building stone for quoins: this one is well behaved and regular, but some of the towers, like Wacton, south of Norwich, bulge like sacks of potatoes. There is also one at Wortham, near Diss, now roofless, which is the size of a Norman shell keep.



Norwich Castle: the design is c. 1120 and a muddle, the case-hardening is c. 1840 (Salvin) and a disaster. Its inside is a museum, its motte is a late Victorian landscape-gardener's maze: but there is a wonderful view from the top.





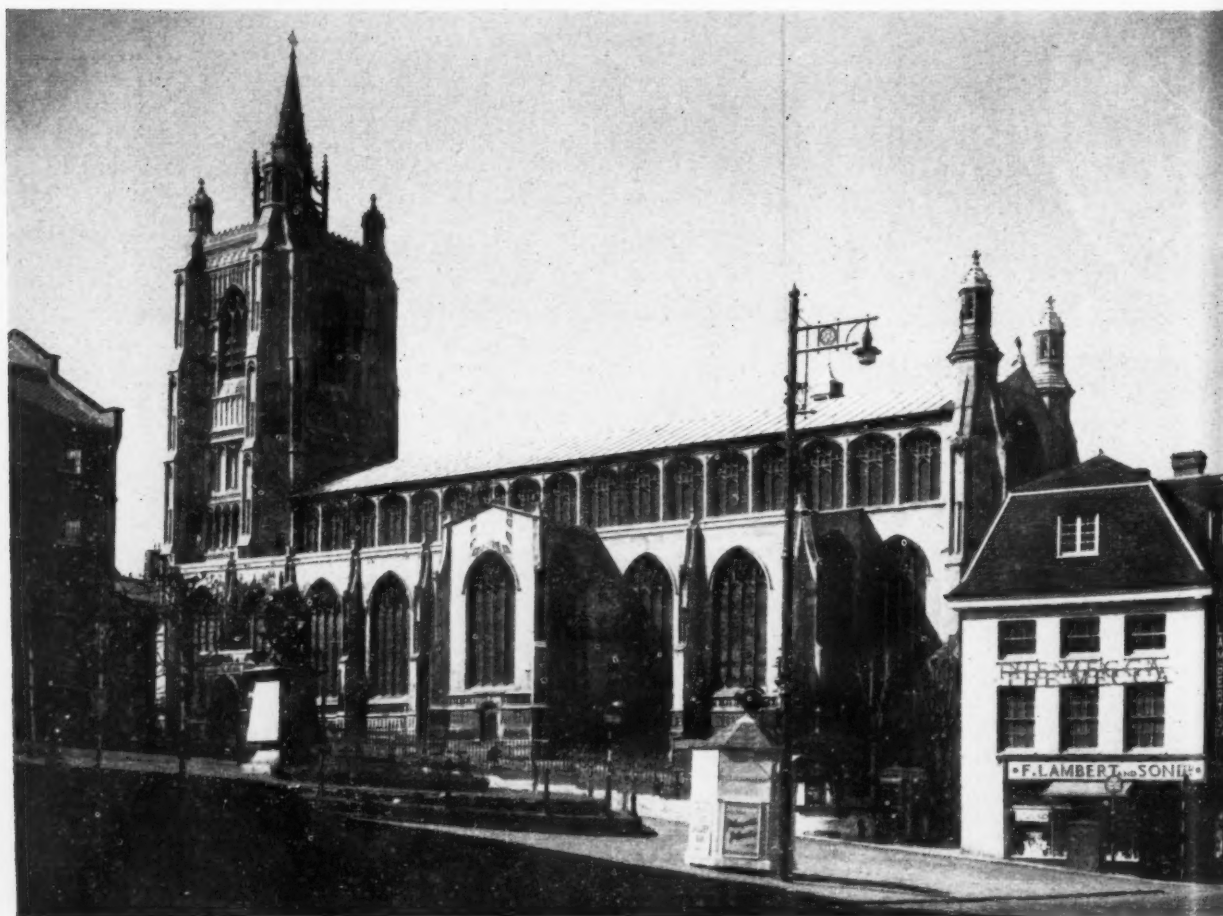
The cathedral, a good candidate for the best Norman building in England. The proportions are magnificent, and the idea of making the triforium the same height as the nave arcade, which sounds very odd on paper, works out splendidly in practice. Dignified but not ponderous: huge scale but never overpowering—it has all the Anglo-Norman virtues at their best: in its way as much of a classic as Chartres. The Perpendicular vaulting (above and second from top) is a masterpiece, with just enough weight to keep the space consistent, but never so much that it overpowers the Romanesque. Some of the details in the earlier parts are very odd, like the grotesque stilted arches under the tower; and if you think the south wall at Ronchamp is a bit outré and modern, take a look at the south transept of Norwich Cathedral on the left. Apart from the vaults, the only big later additions to the cathedral were the fourteenth century cloisters. These have famous roof bosses, like those in the nave, possessing the three mandatory qualities of a successful English tourist draw—age, miraculous craftsmanship and a story to tell. But they are not art. The door back into the nave at the NE corner is a little earlier (c. 1300) and a much finer thing altogether, (top left). Christ and swaying Apostles under swaying three-dimensional ogees stretched across a four-order arch.





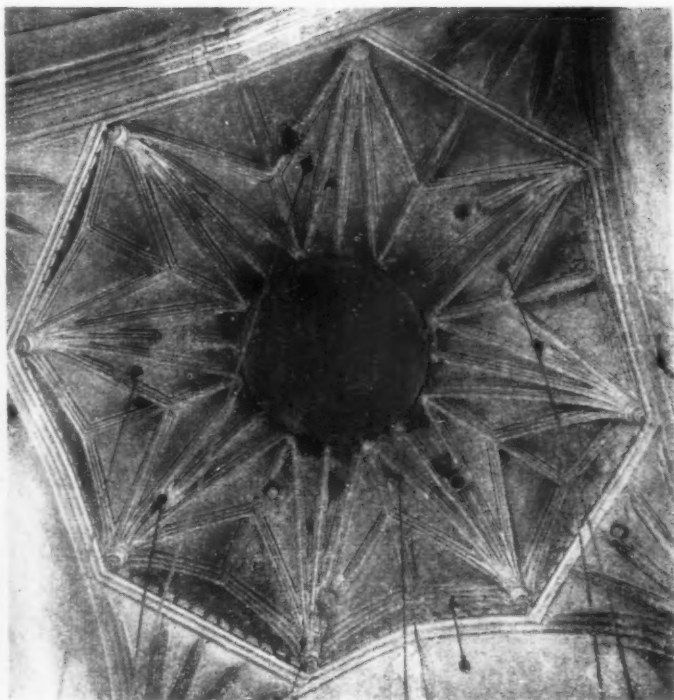
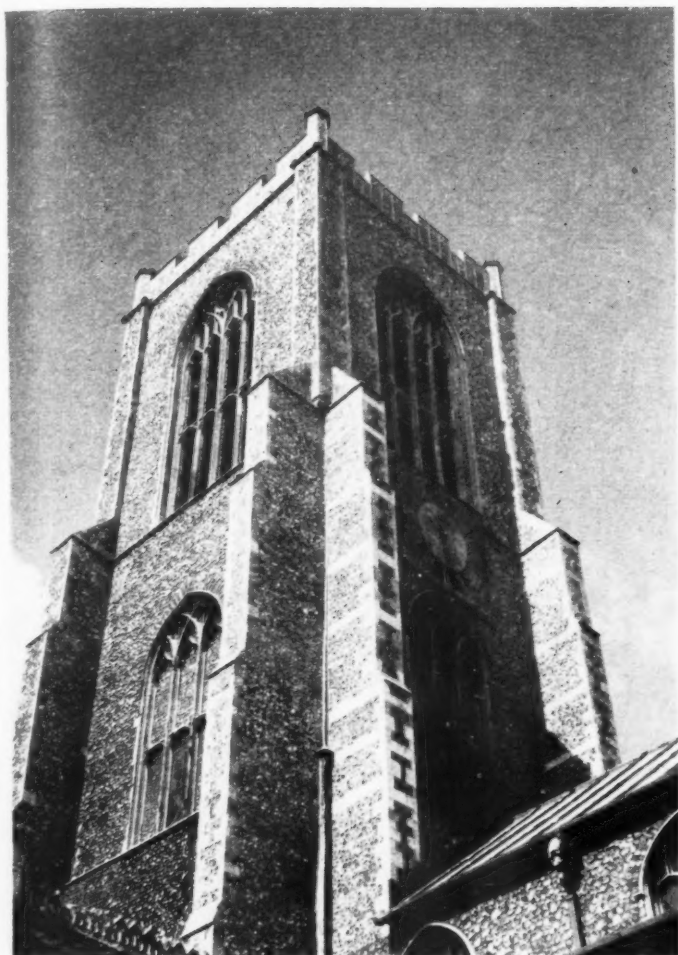
### MEDIAEVAL CHURCHES

Even after the bombing, Norwich still has thirty-one Anglican churches inside the line of the walls. They are all mediaeval and nearly all dreary—the flint is intractable, the mediaeval Norfolk masons liked their stonework hard and wiry, and the Victorians gave the result a thorough course in re-cutting. They are indifferent architecture but magnificent townscape: views like St. Lawrence's church tower, left, (Victorian, but never mind) rising above the quayside warehouses are repeated again and again, a perpetual reminder that life is indivisible, not a set of airtight compartments. The best known is St. Peter Mancroft, below, all ashlar stonework, a sure sign of money to spare in a Norfolk church. Unhappily, the designer took his flint ideas and tried to carry them out in stone. Unhappily also, G. E. Street, in his hard old age, put the silly top on the tower, and the result is a tragi-comedy, at the same time grand and ridiculous. The inside, with a magnificent roof which plays a game of "hide the hammerbeam," using coving as though it were a rood screen, is much finer, but has none of the knife-edge thrill of buildings like St. George's Chapel at Windsor. The only place in Norwich where that can be found is the extraordinary 16th century tower vault put into the earlier church of St. Gregory Pottergate, opposite, bottom left. The church itself has one of the few sanctuary knockers left in England, bottom right. The less ambitious churches are often better—St. Giles is a good straightforward early Perpendicular design, opposite, top left, (Norwich Perp. is best early and late): St. George's Colegate, opposite, top right, is perhaps the best of all the Norwich churches, with an unrestored Georgian-furnished interior.

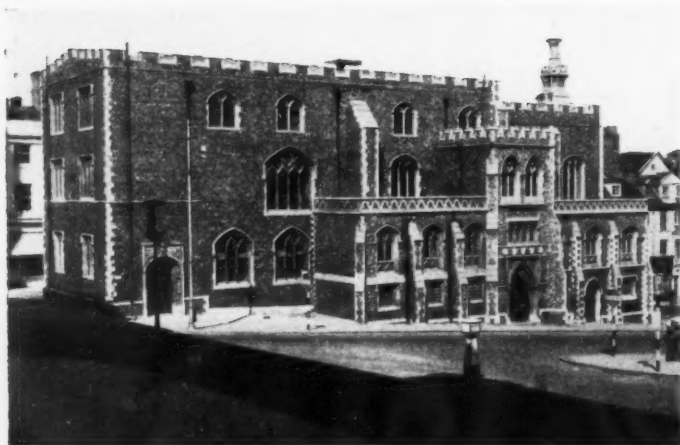
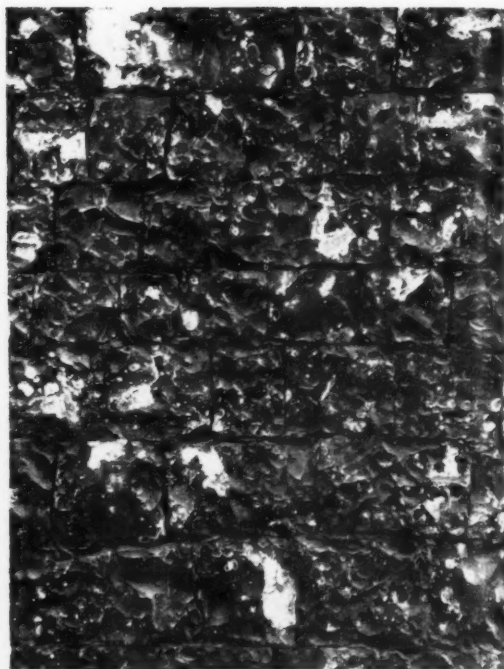
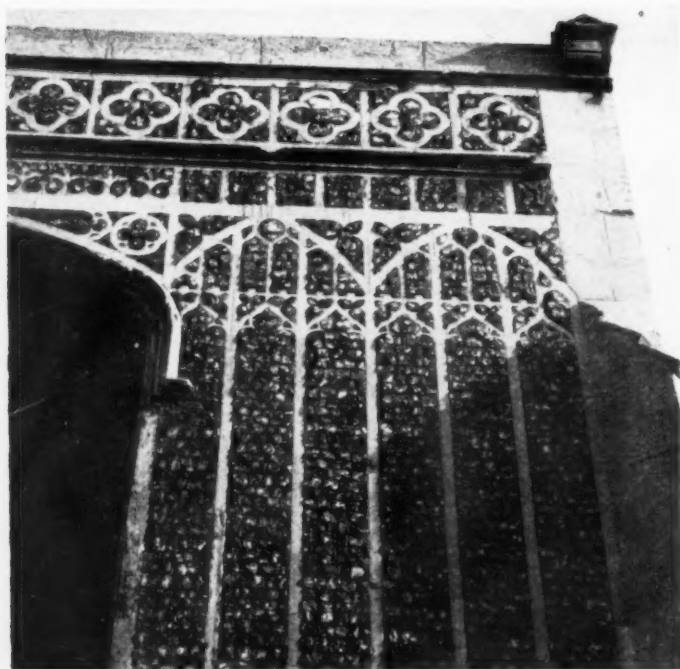




# NORWICH GUIDE



# EXAMPLES OF FLINTWORK:



Flint flushwork: thin ashlar strips laid in patterns on the flint core. The best virtuoso display is at St. Michael Coslany, top left. Most of it is Victorian, and it would have helped matters if the modules of the flushwork windows and the real windows had been the same, but it is good fun. Often what is more impressive is simply



the technique of dressing and knapping the flints themselves, top right: this is part of a wall on the Bridewell, built c. 1480 as a merchant's house and now an admirable museum of local industries. The joints (and presumably, a very thin layer of mortar as well) are almost invisible, and the overall effect of the Bridewell is that of a tiny coal-black piece of Italian Gothic. Public Buildings: above left, the Guildhall, early 15th century; the police courts in front and the air of general depression by T. D. Barry, 1861. Above right, the Great Hospital, looking like a cruciform church. In fact, the crossing and transepts are a parish church, St. Helen's, but "nave" and "chancel"—the latter shown here—are divided into hospital wards; the arrangement is barely altered from the medieval layout.

Left: Bishop's Palace, Heigham; a mile north-west of the city centre. Built in 1587, its condition is due not to decay but to bombing. Before the war it was (what else, in Norwich?) a pub, the Dolphyn: and will shortly be so again.

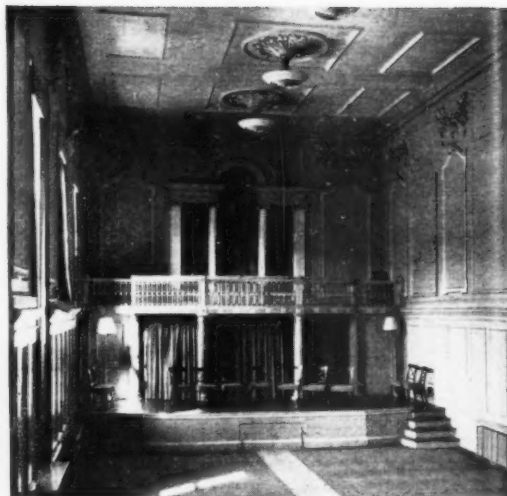
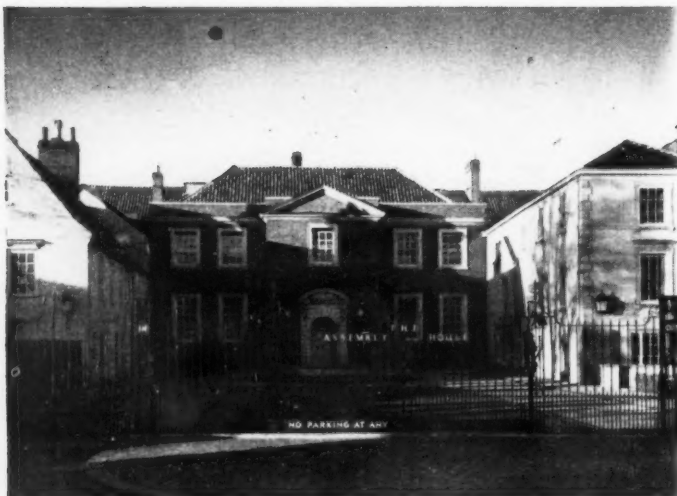
# NORWICH GUIDE



The Jacobean font covers of Norwich are in a style all of their own, combining a variety of semi-symbolic objects into strikingly forceful images. Sometimes the result is altogether too much of a good thing like St. Michael-at-Plea (top left) where the final openwork ogee with a bird on top disappears into the gloom around the rafters, but that doesn't apply to St. George's Tomblond (bottom left), where St. George and the dragon combine with the tempietto and the pylon to produce what can only be called architectural poetry. Even stranger is the fantasy on the font in St. Gregory Pottergate (centre left): long-necked birds tied back to a central post, like a queer Viking throwback, and crowned by a smooth Arp-like knob.

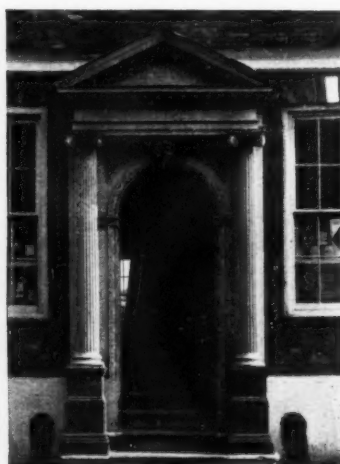
Top: the Old Meeting House, Colegate, 1693; splendid brick craftsmanship—again, provincial to a degree: this is the London style of the 1640's. But the detail and the texture disarm any criticism. Above: Norwich's best seventeenth-century house, bulky and provincial, facing the market place next to the Guildhall. Twentieth-century Norwich pays its respects on the ground floor.





### EIGHTEENTH-CENTURY NORWICH

Eighteenth-century Norwich—dignified, plain and a little dull. The principal architect was Thomas Ivory, in whose pattern-book *Assembly Rooms*, 1754, the Conference reception is being held. The exterior (above) gives no idea of the rich plasterwork inside, in a rather Irish style, and the fine gallery in the music room, above right, added about 1810. The Assembly Rooms were preserved during the war by Oliver Messel who commanded a camouflage detachment that was billeted here. Among other things he put his men on to marbling the columns—now unhappily removed in the interests of accuracy. Ivory's best known building is the Octagon chapel in Colegate, 1756 (right); never has an octagonal building had eight blander brick sides than this. Centre below, the copy-book door-case of No. 20 Colegate is sandwiched between two of the best Georgian houses of Norwich: No. 1 St. Giles' Street, right—presumably by Thomas Rawlins, as a plate of it appears in the book of designs he published—and Nos. 44 Magdalen Street, threatened by road widening, left. The inevitable speculation is whether the Venetian window came out half size by mistake; in fact the difference in scale is very successful.





## NORWICH GUIDE

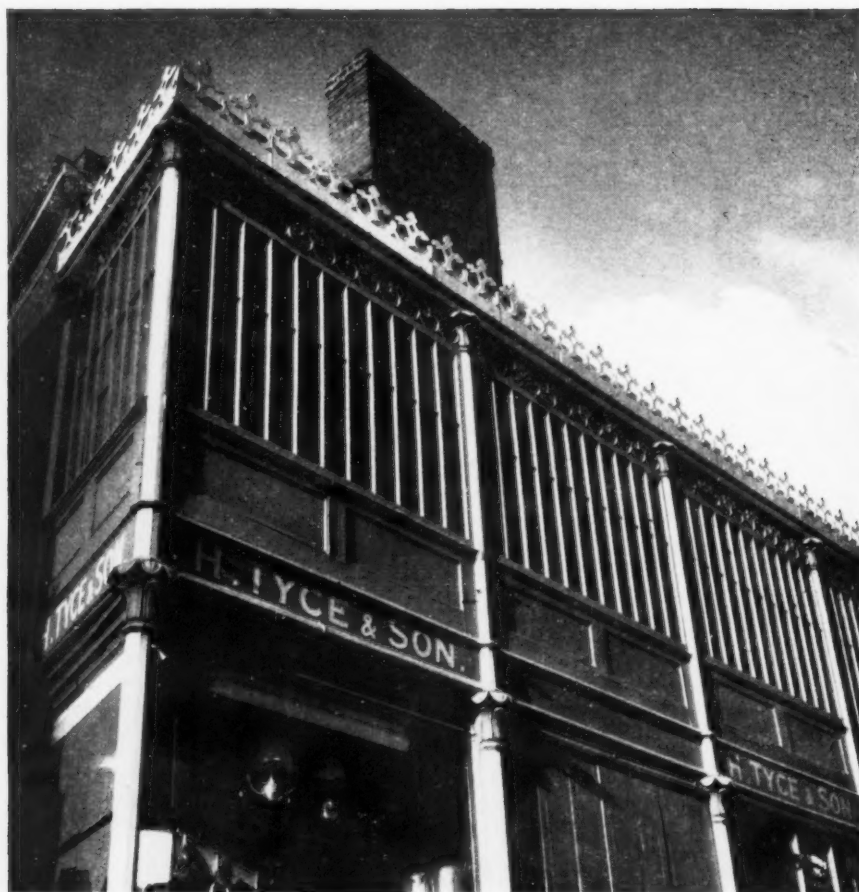


The fantasy that is missing from eighteenth-century buildings went into the church fittings and monuments. The local sculptors produced a charming blend of sentimental cherubs and rococo plasterwork, rather like the Bristol school: the monument in the Cathedral, above left (tucked away in one of the ambulatory chapels) was designed by Thomas Rawlins, who did the house on the facing page. The designer of the other monument in St. Giles church (above right) is unhappily not known, but he had the idea of balancing totally dissimilar forms to a fine art. It is perhaps the most bizarre of all English eighteenth-century tablets: and incredible as it may seem, this unknown Meissonier did it *again*, producing an identical design at Melton Constable, near Fakenham.

The mayoral sword rest extreme (left) is also in St. Giles, another tradition shared with Bristol: each mayor added a cartouche to the sword-rest in his own parish church.

The Yarn Mill, no Jarrwold's printing works, by the river (below), is the noblest of all English Industrial Revolution mills. The circular tower holds a hollow shaft with a spiral staircase round it, and the bundles of yarn were originally simply thrown down from the upper floors. The date is 1836, the architects were just possibly the builders, Darkins and Cattermoule: one would very much like to know. Reached most easily from the north end of Tombland, past Palace Plain: it is a must if you have twenty minutes to spare.





### NINETEENTH CENTURY

The nineteenth century was all mixed up about architecture: so what could be more appropriate than this heterogeneous set of nineteenth century Norwich buildings? They are all good in their style, but try to fit them into one pattern and you will have written a long and badly-needed book.



Above left: Tyce's, Castle Street: cast iron and glass construction at its best, with no thought of architecture. Above, top: Purdy's, Tombland (good place for coffee) with thoughts of nothing but architecture, of all styles—a lot of Norman Shaw, Wren swags, Norfolk pediments and even *yeux de boeuf*: the mixture expertly stirred by E. P. Willins, 1884. Above, centre: decorative fantasy in Chapelfield (just along from the Assembly Rooms)—St. Mary's Croft, done in the 1890's by Captain Crowe, an eccentric. The attics are reputed to be inspired by architecture seen in the Zulu Wars: Crowe used to frighten the locals by chipping away at them late o' nights. Above, bottom: structural fantasy in a mission church in Magdalen Road. Designed by R. M. Fulford, built by Boulton and Paul at Norwich, who built hundreds to his designs and shipped them, pre-fabricated, to unlikely places like Fleetwood. Now in bad condition: worth preserving, but it won't be, of course. Extreme left: the huge Catholic church at St. Giles by George Gilbert Scott (Sir Gilbert Scott's son), altogether too much of a good thing. Left, the much neater presbytery he designed to go with it is speaking a nineteenth century language, not struggling through in an expurgated version of Middle-English.

G. J. SKIPPER

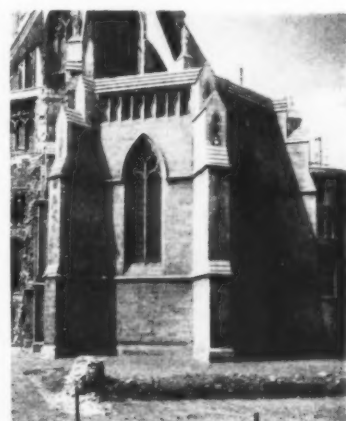
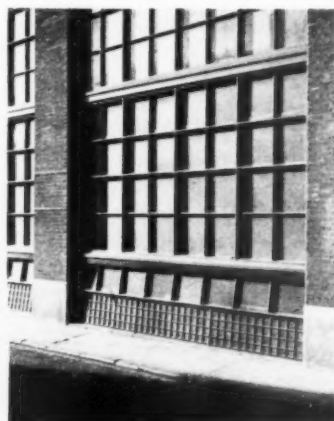


G. J. Skipper, founder of the present firm of Skipper and Partners, was one of the most original Edwardian architects in the country. He is best known for his prodigious offices for the Norwich Union in Surrey Street, in Wood-of-Bath Palladian, and what is now Telephone House in St. Giles' Street, in super-Baroque; but his expert and eclectic flair for the right detail in the right place is just as evident in these three smaller buildings. Left, Commercial Chambers in Orford Place, 1903, not very happy in its modern fascia; above left, a private house, 431, Unthank Road, and Skipper's only excursion into Art Nouveau. His Royal Arcade, running back from the market place to Castle Street, culminates in the incredibly creepy and very successful pub, above.

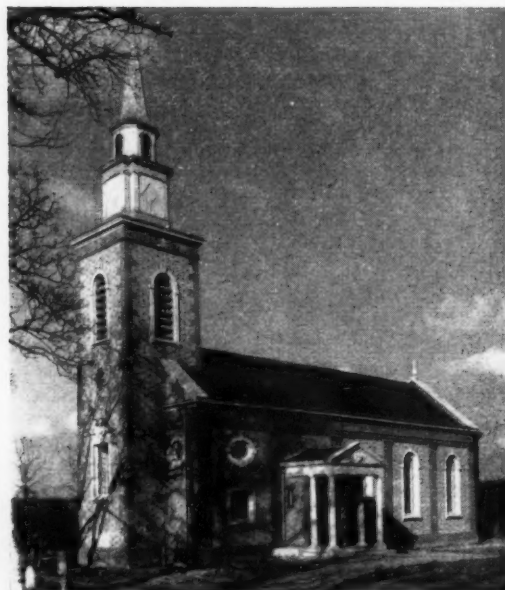
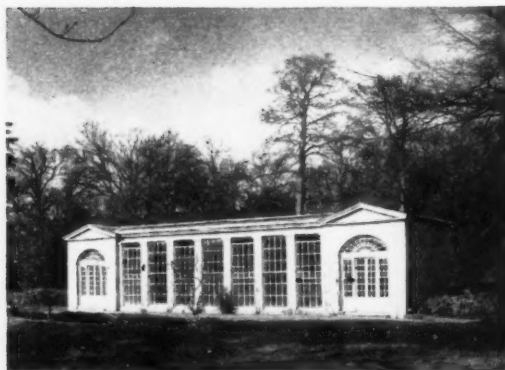
## TWENTIETH CENTURY

Modern architecture in Norwich? . . . see next week's JOURNAL. But nothing is as much ahead of its time as was this factory in Botolph Street, by A. F. Scott, left and centre, which was built in 1903; and neither is there, in

compensation, the sensitivity and expertise shown by Sir Charles Nicholson in the Lady Chapel he added to the Cathedral in 1932, right. But see next week's issue on post-war Norwich and judge for yourself.



## CONFERENCE TOURS: WHAT VISITORS WILL SEE...



... on tour 1: Blickling (top left): the sudden improbable appearance of the main front, with its stables and topiary, at a bend in the road is one of the most thrilling views in England. The building itself will not stand up to a close look—few Jacobean houses do—but that is not the point. If the total image is successful, never mind the details; and the image is as memorable as a Donne sonnet. The orangery (second from top, left) in the grounds, seen on the approach from Aylsham, was built by Thomas Ivory in the 1770's when he altered the house. Too much Norfolk Palladian is unrewardingly stark: here starkness is a virtue and the result is a good straightforward job which could hardly be improved on. It is still used to ripen fruit, not for dainty teas.



... on tour 2: Cawston, above: one of the Norfolk village cathedrals (Salle, on the same tour, is another); the 15th century tower is a landmark for miles around in the flat landscape. The details are sometimes muddled or hard; the scale takes one's breath away, particularly in the enormous whitewashed interior.

... on tour 5: Bawdeswell Church (left) on the way to Holkham. The coach will run past it anyway—try and get it to stop. To the moderns it is a comely curiosity; to others it carries a vital moral—if you *are* going to build in period style, for heaven's sake do it well, like this. The architect, J. Fletcher Watson of Norwich; the date, 1955.

... on tour 5: Holkham, shown opposite, speaks for itself. William Kent may not have been a great architect, but he was one of the best decorators we have ever had. The climax of the Park is an incredibly sombre circus of evergreens around an obelisk south of the house, with a great avenue of holm oaks, several trees to each stand, leading south out of it: a setting calling for a more positive, Vanbrughian house than the strung-out exterior of Holkham.

... on tour 6: Hingham, bottom left: a famous centre for Puritan colonists (Lincoln's ancestors came from here) and the best of the little decayed towns of Norfolk. The bigger towns remained centres throughout the railway age and their appearance altered for the worse accordingly: Hingham was by-passed by the railway and left to stagnate. Now, ironically, it retains the urbanity that Dereham and Fakenham have lost.



# NORWICH GUIDE



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# CONFERENCE TOURS:



## WHAT YOU CAN'T HELP SEEING

Norfolk is less spoilt than the rest of England only because less people live there. The will-to-Outrage is just as strong. Here are four specimens from the tours: top to bottom, prairie planning and squalid design on the Dereham road, Norwich (tour 6); a derelict airfield at Oulton, near Blickling (tour 2)—Norfolk has twenty-three disused airfields, and most of Breckland is still a battle area; contempt for the Norwich city walls (tour 6), an apsed lavatory designed and sited as unsensitively as it could be; and sprawl on the Dereham road beyond the city boundary (tour 6 again). The post-war sprawl of Norwich, per head of the population, is the worst in the country.

## WHAT YOU OUGHT TO SEE . . .

A selection of buildings not included in the tours, to whet your appetite or to help you (if you are car-borne) to make your own detours.

The average Norfolk village church is big and hard, but a little group south-east of Norwich escaped fifteenth-century rebuilding. This one (below), thatched, with a Norman apse and an octagonal tower with brick quoins, is at Heckingham, east of Loddon. (You could see this while visiting—as you must—the Tayler and Green housing, see page 560.)

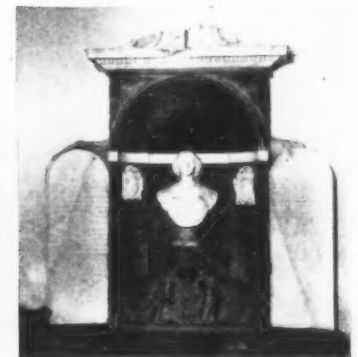
Burgh-next-Aylsham church (bottom) is a splendid bit of village Early English. Alas for the purists, the easternmost bay and the east end is Sir Gilbert Scott, 1856. If you have a conscience about such things, go there and fight it out for yourself: if not, go there anyway and give thanks for what was probably (knowing Sir Gilbert Scott) a happy accident.



# NORWICH GUIDE



Above: no restoration about this, apart from what is needed periodically to prevent it sinking into the marsh: West Walton, beyond Kings Lynn in Norfolk's segment of the fens. The tower is advisedly detached, otherwise



the nave would lean more than it does. But the combined richness and delicacy of the design and the unrestored interior (top right) make it worth a special visit. Swanton Morley church (above centre) near Dereham is a subtle and very angular early Perp. design. Marvellous interior—also a *design*, where so many of the big churches are assemblies of virtuoso carving. Nicholas Stone's monument to Lady Katherine Paston (above, bottom) in Oxnead church, three miles south-east of Aylsham. As the photograph shows, it is very dilapidated, though the proudly-modelled bust and sombre jet-black surround are still an object lesson in pathos. The epitaph starts with a pun, "Needes she another monument of Stone / Who had so many better than this one . . ."; and one wonders whether some personal grief inspired such a moving testament to mortality.

St. George's church, Great Yarmouth, 1714 (left)—Nautical Baroque at its bulgiest and best, completely unrestored. The architect, John Price, did some queer things with his proportions and he also bent pedimented windows around the rounded corners in an engagingly naive way, but he understood the spirit of Baroque movement. The inside, barely altered, has a superb gallery supporting a see-saw groined vault which partly returns at the east end and is answered by a cavernous apse—the pattern of St. Clement Danes with twice as much life to it.





CONFERENCE TOURS:



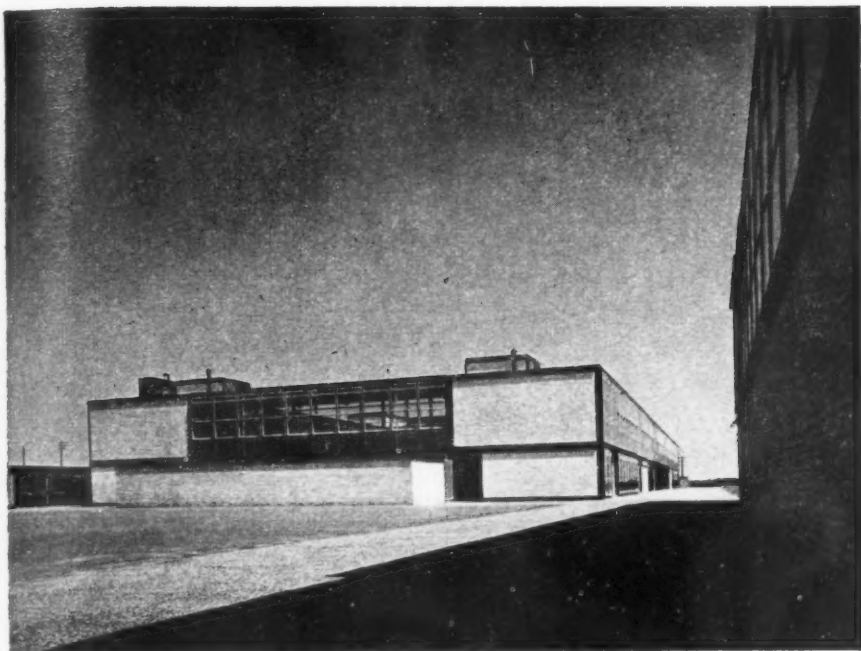
WHAT YOU OUGHT TO SEE *continued*

Booton church, near Cawston, is an incredible late-nineteenth century fantasy by the Rector, the Rev. Whitwell Elwin, who acted as his own "architect, builder, contractor and clerk of works." The result is more Rococo than Victorian, and the superb fantasy of the two

open-work spires and the impossibly tall pinnacle in between them will follow you around the horizon for much of the afternoon on Tour 2. If the coach driver can be persuaded, divert him: big Perp. churches grow in many countries, but this extravaganza is unique.



## NORWICH GUIDE



Hunstanton school. The tours don't take you there (it is ten miles west of Holkham) which is a pity, because, like it or detest it, it is one of the most controversial buildings in the country—one of the few buildings that is worth arguing over. And it must be *seen*: photographs give no idea of the taut planning, no idea of the splendid

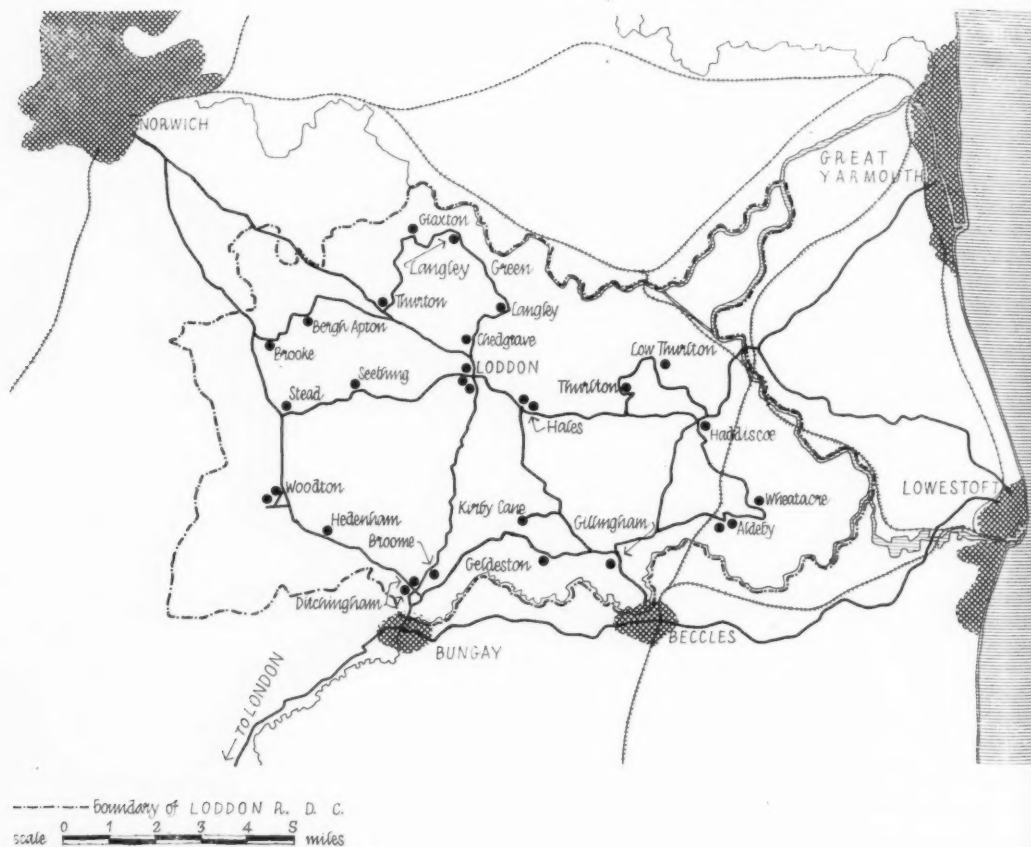
detailing (and badly wearing art work is far more likely to have a bad effect on children than this neat face-value exposition of what ought to be exposed). Nor can they, on the other hand, suggest the noise level. But go and see for yourself; don't praise or damn on insufficient evidence.



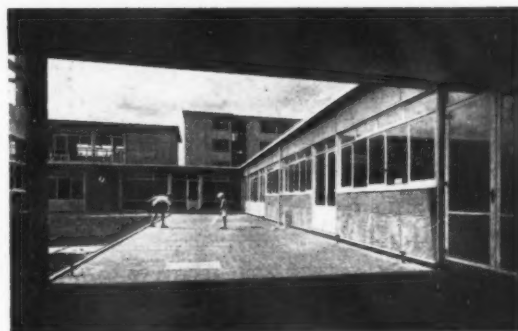
# WHAT YOU OUGHT TO SEE *continued*



Housing for the Loddon R.D.C. by Tayler and Green, 1946-56. The best rural housing in the country, all within half an hour's evening drive from Norwich. At a time when most local authority housing does its best to wreck existing villages, these estates have enhanced and in some cases created village centres. The map below shows the sites and the best way to get to them.



The theme of this year's British Architects' Conference, which opens at Norwich on May 30, is "Architectural Economics." As regular readers will know, this is a subject to which we have given a lot of attention since last year, when our Guest Editors for 1955 wrote a series of articles on costs, and we introduced the policy of printing cost analyses of the most important buildings published. The authors of this article, Clifford Nott, Kenneth Norman and Derek Stracey, who are quantity surveyors with considerable experience of cost analysis and cost planning, follow up James Nisbet's article of May 10, in which he described the technique of cost analysis and cost planning. They outline the factors important for success in using the technique; they discuss modifications evolved from their own experience and they present a "cost planning case-history." Cost planning is, of course, a new development and represents, in potential, a very bold step forward



*The Ministry of Education school at Wokingham, completed in 1953. Chief architect: S. A. W. Johnson-Marshall. It was on this building that the technique of cost planning was first used.*

in architectural competence. While the principle of using a cost-by-element technique at design stage seems now to be established, details of form and application must remain fluid while wider experience is gained. Some of this week's authors' conclusions differ from JOURNAL practice in published analyses, and we would welcome readers' views on the differences.

## THE NORWICH CONFERENCE THEME:

# ARCHITECTURAL ECONOMICS

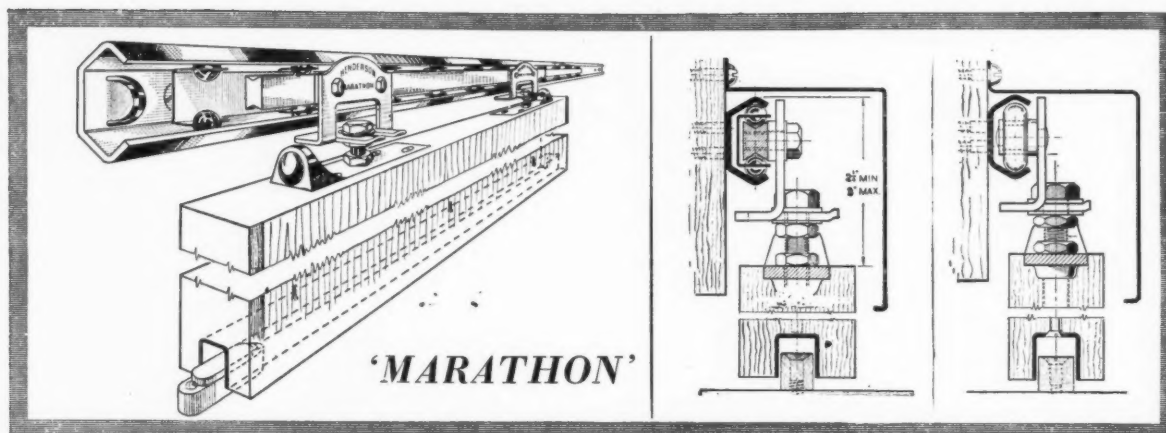
A year has passed since the AJ's 1955 Guest Editors said that if building costs were to be brought under proper control, some form of analysis of the costs given in priced bills of quantities would be necessary. They also said that such analyses should be recorded in a generally agreed form so that the data could be used by the architect and quantity surveyor in planning the cost of future projects, which were not necessarily comparable in construction or design.

### Criticisms

The original cost studies published in the JOURNAL were largely analyses of school buildings, and the criticism has been made that such analyses are of use only in cost planning with schools because "schools are all alike". Those with experience of the method find that this is not so. With practice one will see that a few soundly priced jobs accurately analysed give a

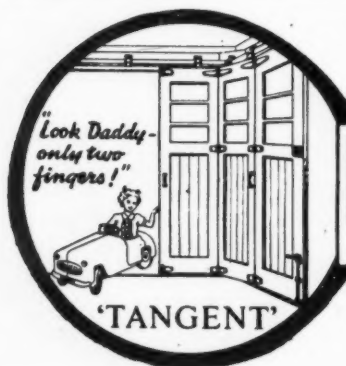
better basis for cost planning any type of building than the average cost from the analyses of a number of seemingly comparable jobs. What is required is the specification and the unit quantity of construction, e.g. area of roof, run of eaves, number of rooflights, etc., in each element, and knowledge of the circumstances and of the way in which the job was priced by the contractor. Thus the ideal case is where architect and surveyor are using analyses of their own previous jobs to prepare a cost plan. Given the task of designing to a fixed limit of cost, or of estimating the cost of meeting the client's requirements, very accurate cost plans can be laid down. This would still hold good even where the building on which the analysis was based, was not consistently similar to the one being planned. Provided factors affecting the price are known, adjustments for dissimilarities can be made, although obviously the more they are comparable the less conversion

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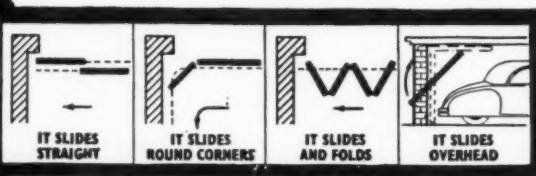


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## COST ANALYSIS

Notes: Comments: see cost plan attached works	ELEMENT	COST PER SQ. FT. IN PRICE	ELEMENT	COST PER SQ. FT. IN PRICE
1. General works include: a. Building works external walls adjacent to building, b. Road works and drainage, c. Site layout, planting, d. Landscaping, e. Planning fields including additional cost to contents due to bad site and abnormal use of site works caused by waterlogged clay soil.	Public and entrance	11.12	Wall finishes	26.12
	Contingencies	15.15	Built-in fixtures	19.19
	Work before ground floor level	47.15	Fittings	19.19
	External walls and roofs	47.15	Plumbing external	9.19
	Internal load bearing walls	21.14	Plumbing internal	13.14
	Internal partitions	11.14	Sanitary fittings	8.06
	Floors	11.14	Gas installation	4.59
	Upper floor (ceiling and staircase)	65.18	Electric installation	40.09
	Roof	74.19	Heating installation	51.17
	Rooflights	74.19	Ventilation	10.15
	Time finishes	51.45	Drainage	20.01
	Celling	28.44	Painting	9.74
	Windows and doors (ext.)	10.28	Decorations	27.15
	Doors (internal)	10.28	Playgrounds	41.18
	W.C. doors and partitions	3.10	Fenced areas	
	Classroom fittings	3.10		
	Teacher's desk			

Fig 1. The earlier form of analyses published in the JOURNAL. Ravenscroft Secondary School, Barnet, Herts. C.C.

analysis				
Upper floor construction	Location	Materials	Finish	Reasons and comments
Refuse	Site built	Brickwork	Concrete	To suit on top floor roof construction and built into external terrace
Yard setting	Site built	Brickwork	Concrete	Unconcerned except of site setting and structure
upper floor construction 3 10				
Staircase	Location	Materials	Finish	Reasons and comments
Public access to building	Site built	Brickwork	Concrete	
Staircase	Location	Materials	Finish	Reasons and comments
Public access to building	Site built	Brickwork	Concrete	
staircase 1 5				
Roof construction	Location	Materials	Finish	Reasons and comments
Flat	Site built	Structural steel on reinforced concrete	Light weight, white, square, brick	Light weight, white, square, brick and dry construction
roof construction 3 21				
Roof lights	Location	Materials	Finish	Reasons and comments
Light pitch	Central corridor	Concrete with reinforced glass on concrete supports	Internal finish painted	To give maximum lighting effect viewed from main hall
roof lights 01				
Windows	Location	Materials	Finish	Reasons and comments
Private study	Generally	Steel	Galvanized and painted	
windows 1 11				

## RATIOS

Garage pits and enclosing lines		Area of windows (including external doors)	
Area of enclosing walls	1	Total floor area	11
Total floor area	4		
Area of solid wall	1	Total roof area	1
Area of roof area	6.4	Total floor area	1.13
Side wings and auxiliary buildings			
Area of enclosing walls	1.1	Area of window (including external doors)	1
Total floor area	1	Total floor area	15
Area of solid wall	1.1	Total roof area	1
Area of roof area	1	Total floor area	1

Fig. 2. The later form of analyses published in the JOURNAL. By showing the cost per square foot of floor area opposite the description of the construction, and by giving ratios of actual area (or number) of the element to floor area, it is possible to adjust element costs according to size differences between the analysis and the building being cost planned. It is also possible to assess the quality represented by the cost.

and detail work will be necessary.

This emphasis on the value of personal knowledge of the analyses used, implies a reassessment of the analyses published by the JOURNAL. The first ones to be published gave a list of headings (elements) and their costs per square foot of floor area at the end of the description of each job (see Fig. 1).

The presentation has now been changed so that element costs appear opposite the description of the construction of the element and ratios are given showing the relative quantities of elements by area or by number (see Fig. 2). This allows a much more informative comparison of analyses. But in our experience this amount of information is still not enough to establish for certain the distribution of the total cost across the various elements which make up the building.

An immediate superficial comparison between different jobs should not have too much importance placed upon it unless all the other factors affecting price are taken into account. In conversation among architects, surveyors and builders, rates and prices are often quoted and compared in a casual way that ignores differing circumstances. For example in making comparisons one must consider *inter alia*:

- (a) economic conditions of the time
- (b) the tender date and time of year
- (c) the locality of the job
- (d) the size of the contract
- (e) the labour and materials situation at the time
- (f) whether the site was open or confined
- (g) the specification
- (h) the quality of job management and supervision.

It would obviously be difficult to convey the detailed effect of this kind of information on prices in any standardised form of presentation for analyses.

In this article we are emphasising that cost analysis and cost planning yields its greatest value when practised within a particular office or locality. If then, the published analyses are not so useful for cost planning as those prepared in the architect's own office or for jobs of which he has personal knowledge, of what value are they? Assuming that their consistency and the amount of information given with them can be improved in the future, in our opinion they still merit publication in order to illustrate continually the basic method and need for cost analysis and planning and to put across the *idea* of cost analysis to the architectural and surveying professions. They emphasize the need for very early co-operation between architect and quantity surveyor and where possible with the practical side of the building industry, and we believe that illustrations, specifications and details of costs published together give a properly balanced guide to the reader.

Just as no architect would say that the publication of photographs, plans and specifications of buildings was useless because they are of necessity incomplete, and because he could not fully detail, say, a window frame from the information given, so then, a cost analysis should not be disregarded because it does not indicate in complete detail the distribution of cost.

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## —AN ASSESSMENT

THE VERY GREAT POTENTIAL VALUE of prestressed concrete is the best possible reason why its merits should be assessed objectively, and sensational statements both *pro* and *con* can be examined in the cold light of fact.

**W**E have specialised in precast concrete since 1919. While we have no bias whatever as between ordinary R.C. and prestressed—and in fact our business was founded on the former—we have been cautious advocates of prestressing, for specific purposes, during the last eight years. In that time the rate of delivery of Bison prestressed products has climbed steadily from 400 tons to 112,000 tons a year, including floor and roof units, columns up to three-storey height in one length and beams up to 60 feet span. Virtually all these have been erected by our own teams. We can therefore claim some practical knowledge of the subject. In addition we have carried on a continuous programme of research, including protracted tests under extreme load.

**First, the question of cost.** Estimates put in by firms lacking experience and proper equipment have created an impression that prestressed is more expensive than ordinary R.C. We can say from our own knowledge that, properly applied and carried out our way, it is actually lower in first cost apart from its other special advantages. The main reason for this is economy in steel. Our figures show that, on an average job, the cost of high tensile steel wire for prestressing is considerably less than half of the much greater weight of mild steel required for reinforcement. A very small fraction of this saving is absorbed by extra skilled labour: the rest comes off the cost of the job. This year customers of Bison prestressed will save £240,000 by using 2,500 tons of wire instead of 12,000 tons of mild steel.

**As to results:** it is an undeniable fact that prestressing, properly carried out, greatly increases the potentialities of concrete; and that the latest prestressing techniques—besides improving reliability—give still higher strength/weight ratios, reducing dead loads and allowing wider spans; thus permitting economies in structure and foundations, and greater freedom in design. Pre-

stressed beams, being lighter than ordinary R.C., moreover, can be handled conveniently in greater lengths. These benefits are of course additional to the known advantages of manufacture off site in ideal conditions—speed, closer control, lower first cost, avoidance of delays due to weather, and better all-round working conditions on site.

It is equally true that the actual strength and endurance of every prestressed member are dependent to a high degree on quality of materials and the standard of workmanship in fabrication. This is inevitable; it is characteristic of the process that it places great reliance on efficient methods.

For this reason Concrete Limited have given, and give the most exhaustive attention to essential details of prestressing theory and practice. The correct mix; the placing and stressing of the wires; their configuration and treatment for maximum bond strength; compaction; curing conditions—all are the subjects of continual research and trial. Special equipment and moulds have been developed. A rigid standard is laid down for materials, and enforced by strict tests of every delivery. All skilled operations are carried out by trained men under expert supervision and laboratory control.

The degree of success achieved is evidenced by the tonnage of Bison prestressed products now giving satisfactory service in Britain's most important industrial buildings, flats, schools, hospitals, airports and stores. Concrete Limited are in fact the largest producers of constructional prestressed concrete in the world.

The potentialities of precast concrete, ordinary R.C. or prestressed, should be considered in the light of all available facts at the earliest possible stage. We are always glad to be asked for an appreciation, and to produce the data in our possession.



# BISON

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LICHFIELD Dovehouse Fields, Lichfield, Staffs. Lichfield 2404

FALKIRK Etna Road, Falkirk. Falkirk 1930

EDINBURGH Sighthill Industrial Estate, Edinburgh. Craiglockhart 1729

Item	Eds.	Ft.	No.	ROOFING	£	s.	d.
A			32	No. <u>FIX ONLY</u> metal rooflight and frame size 3'6" x 3'1" overall including eight times screwing to softwood (drilling by Specialist), steel			
B	1	-	Sup	4 1/2" Thick cement and sand (1:3) bed filled into mild steel tray of flue trimmer.			
C	396	-	Run	2" x 2" Cement and sand (1:3) triangular fillist trowelled smooth at upstand.			
D	5	-	"	2 1/2" x 2 1/2" Ditto but circular on plan to 9 1/2" radius.			
E	8	-	"	2 1/2" x 3" Ditto.			
F	87	-	"	4 lbs. Lead and labour in flashing 9" girth laid on steel supports (measured separately) and dressed across dry joint of concrete wall block and turned down 3" over felt upstand.			
G	8	No.		Extra labour dressing lead flashing around steel stanchion 9" girth.			
H	4	"		Ditto 13" girth.			
J	10	"		Extra labour dressing lead flashing into weep hole 2" wide x 1/2" deep in horizontal joint of concrete block.			
K	336	-	Sup	1/2" Georgian wired cast glass and glazing to metal rooflight with putty in panes not exceeding 6 feet super.			
L	30	No.		<u>FIX ONLY</u> 1/2" thick Georgian wired cast glass size 1'2" x 3'6" in asbestos cement rebates including screwing 2 No. fixing clips in position.			
M	12	No.		Painter - Internally.			
N	128	"		Prepare and paint one coat of metal criss before fixing on 1/2" diameter bolt average 4 1/2" long.			
				Ditto on 3/16" x 2" x 7" fixing clip.			
				Carried to Collection.	£		

Fig. 3.—Portion of an elemental bill of quantities. All the items relating to one element, in this case roofing, are billed together, normal trade order being followed. Consistency of practice in allotting items to elements can be achieved by the compiling of an office "reference index." A further development is the gearing of working drawings to the bill by arranging them by elements.

ELEMENT	ACTUAL COST	COST PER FT. SUP. OF FLOOR AREA
	£ s. d.	s. d.
<u>Roofing</u>		
Roof construction including 5 in. asbestos cement built up roof units and 3-ply covering, 1383 ys. £2 3s. 11 1/2d. p.y.s.	3,040 10 11	4 10 1/2
Eaves construction including eaves blocks roofing material lining to gutter, eaves flashings and decorations. 833 f.r. 14s. 10 1/2d. p.f.r.	618 18 4	1 0
Fixed rooflights consisting of asbestos cement roof unit with one upstand, hardboard lining, glazing and decoration. 30 no. £13 6s. 6d.	399 15 7	0 7 1/2
Opening rooflights consisting of metal opening frames with western red cedar lining, softwood trimming, glazing and decoration. 32 no. £25 6s. 10 1/2d.	811 0 3	1 3 1/2
Kitchen vent 1 no.	48 13 10	0 1
Total:	4 918 18 11	7 11

Fig. 4: a suggested revision in the presentation of analyses. This shows the price per unit area of the actual element as well as the total cost and cost per square foot of floor area. Direct comparisons between analyses are possible without the need to "correct" for differing quantities.

### Elemental Bills

In our experience we have found that cost planning from accurate analyses of previous jobs is both practical and necessary.

It is essential when starting a cost plan that each analysis used is consistent. This has been achieved by the use of "elemental" bills of quantities, that is bills in which each element—Works below ground, Upper floor construction, Roof construction, etc., is billed separately in a convenient order (see Fig. 3). Re-abstracting from a priced bill to prepare an analysis is therefore very considerably reduced. Some have expressed doubt as to the possibility of establishing consistency in the elemental bill—which items belong under which headings, but this is not a fundamental difficulty. In the preparation of traditional bills there are many inconsistencies from office to office in bill layout. Prime cost sums may be altogether in one bill or spread through all the bills; builder's work in connection with engineering services may be in the relevant trades or grouped within the engineering bill. Local custom is usually well known to architects, surveyors, clerks of works and builders, and they easily become accustomed to elemental bills, particularly if the normal trade order is followed within each element.

On site, with the contractor's agent, foreman and the clerk of works, the misgivings which always accompany a major change in method are very soon dispelled with the use of the elemental bill, especially when the annotated bill or separate specification are not provided, and the drawings follow the same sub-divisions as the bills.

It is known that one elemental bill of quantities used in a negotiated contract has been further broken down into groups of items within the elements in operational sequence and this may prove worth considering, provided that the extra operation of indexing is done.

### Number of Elements

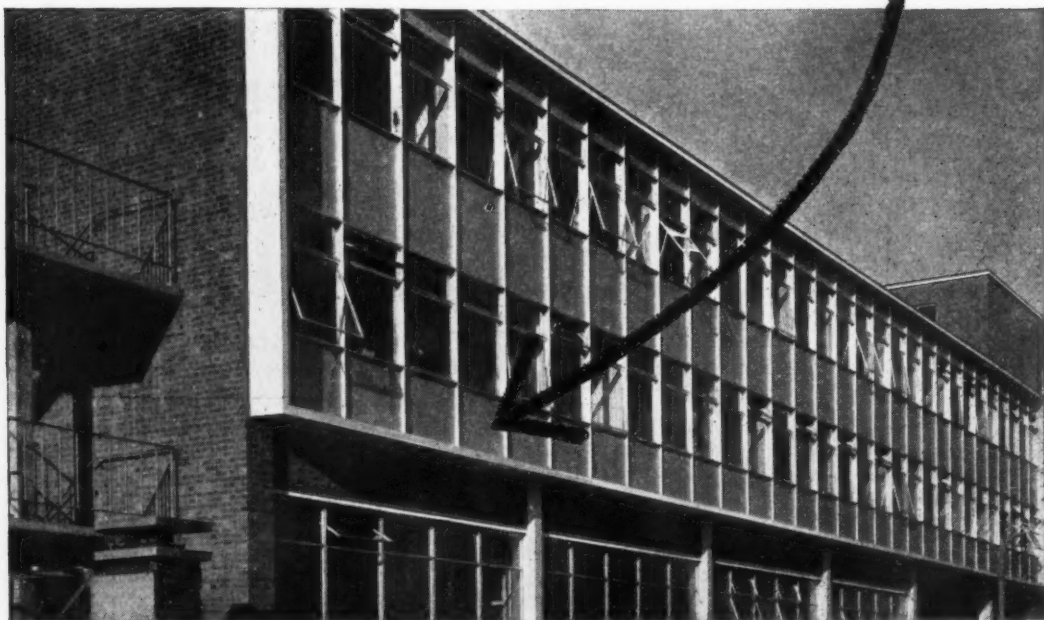
In a previous article by one of the present authors (C. M. Nott) in the JOURNAL for September 16, 1954, nineteen elements was suggested as an appropriate number adequate for most types of buildings. These are shown below. This is far less than the thirty or so elements used by the JOURNAL, and it has been used consistently for about a dozen projects varying in value from £60,000 to £130,000.

1. preliminaries.
2. foundations, site slab, slate cills and d.p.c.'s
3. drainage.
4. structural frame.
5. stairs and steps.
6. walling, external.
7. walling, internal.
8. floor deck.
9. roof deck and roofing.
10. rooflights.
11. ceilings.
12. floor finishes.
13. fire equipment and furniture.
14. plumbing.
15. electrics.

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# SECONDARY MODERN SCHOOL ANALYSIS      TECHNICAL COLLEGE COST PLAN CALCULATIONS

floor area: 35,000

floor area: 52,000

ELEMENT	Cost per sq. ft.	Actual area	Actual area	Cost per sq. ft.
preliminaries and insurances	s. d. 4 3	s. d. —	—	s. d. 4 9
foundations	4 10½	27,500	25,500	4s. 10½d. × 35,000 × 25,500 = 3s. 0½d.
				27,500      52,000
				additional boiler house basement
				estimated at £2,500 =
				2,500 =
				11½d.
				52,000
				4s.
				4 0
drainage	2 5	—	—	saving due to compact site
				2 3
structural frame, gen. s. storey with small 2-storey block	9 1½	—	—	single storey 8,200 × 8s. 6d. 3,485
				two storey 14,250 × 12s. 2d. 8,670
				four storey 29,550 × 16s. 3d. 24,010
				52,000
				36,165
				36,165 × 20 =
				52,000
				13 11
roof deck	4 3½	27,500	25,500	4s. 3½d. × 35,000 × 25,500 =
				27,500      52,000
floor deck	9½	7,500	26,500	9½ × 35,000 × 26,500 =
				7,500      52,000
				1 11
external walling	14 5	26,950	46,260	14s. 5d. × 35,000 × 46,260 =
				26,950      52,000
				16 6
internal walling	5 2	—	—	not detailed at this stage
				5 2
stairs	1 4½	1,090	2,800	1s. 4½d. × 35,000 × 2,800 =
				1,090      5,200
				2 4½
floor finishes	3 8	—	—	—
				3 8
ceiling	3 5½	—	—	—
				3 5
furniture	4 9½	—	—	additional equipment valued at £6,000 = 6,000 =
				52,000
				2s. 3½d.
				7s. 1½d.
				7 1½
plumbing	2 6	—	—	—
				2 6
heating	8 0	—	—	increase to cover complexity of scheme
				8 6
gas	4½	—	—	—
				4½
electrical	3 11	—	—	—
				3 11
				Total target cost
				83 0

Fig. 5: table of calculations of element costs for a Technical College, based on the analysis of a secondary modern school of comparable construction.

16. gas.
17. heating and hot water.
18. paved playgrounds.
19. external works.

The actual number of elements is perhaps of less importance than consistency of practice in layout and allocation of items to headings. The number of elements depends fundamentally on the number of functionally separable parts of the building—upper floors, staircases, roof, frame (or load-bearing walls), etc., and upon how the construction is integrated, *e.g.*, a complete composite structure of an *in situ* concrete barrel vault would combine several elements into which a normal building carcass is naturally split. Some consideration must also be given to the task of the estimator when deciding on bill layouts. In theory the industry should benefit from his more precise pricing, since the elemental bill reduces the ponderables in collective items in trade bills, and tells him generally more about the building. In practice few general building contractors have as yet built up sufficiently detailed costing data to achieve this, so his task should not be made more difficult or tedious than is necessary. He is the *only* member of the building team whose task takes longer with elemental bills. From the point of view of the industry as a whole we consider this to be justifiable because, apart from the advantages of cost control, it can simplify programming and ordering of materials, the valuation for interim certificates and so on.

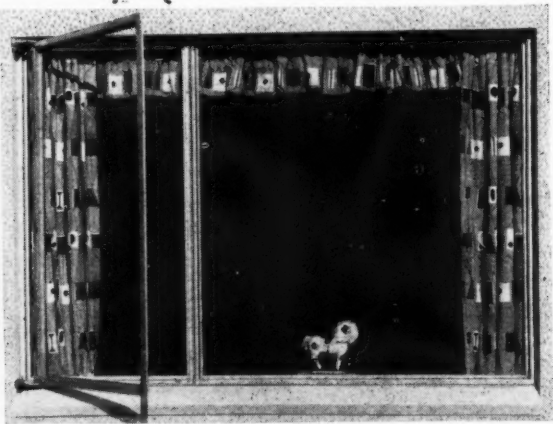
Beyond these influences on the number of elements there are one or two more conjectural headings. For example, decorations—often used as an element by itself—may more appropriately be spread among the elements to which decoration is applied.

This saves re-abstracting in order to compare costs or to make a cost plan allowing the use of self-finished materials such as plastic panels. Other advantages of the elemental bill are that when tenders come in, comparison of the element totals with those of the cost plan or a previous analyses will quickly show up gross errors in pricing.

## Definition of elements

Some critics have expressed the need for definition of what is contained in each element, and for consistent employment of these definitions in the published analyses, so that direct comparison between different jobs may be possible. For example, should horizontal damp-proof course be included in work below ground or in internal and external walling? On functional grounds, one might say that but for the walls the d.p.c. would be unnecessary, thus it should be included in the latter. Questions of this kind are not so important as they might at first seem. As with the question of the number of elements, *consistency* of practice in defining elements is more important than the definitions themselves. We have found it useful in our office to compile a brief reference index showing the boundaries of each element. This is followed in taking off and billing and ensures uniformity in the bills, the analyses and the specification notes that go with them. It is especially useful for "borderline" items such

as . . .

	January		February		March		April								
1 	<h1>HOPE'S</h1> <h2><i>Standard Windows</i></h2> <p><i>for lower cost and quicker delivery</i></p>  <p><i>Delivery ex-stock in standard sizes</i></p> <p><i>See Catalogue 284</i></p> <h3>HENRY HOPE &amp; SONS LTD</h3> <p><i>Smethwick, Birmingham &amp; 17 Berners St., London W.1</i></p> <p>MEMBER OF THE METAL  WINDOW ASSOCIATION</p>							7 							
2 								8 							
3 								9 							
4 								10 							
5 								11 							
6 								12 							
								May		June		July		August	

ELEMENT	Based on analysis of secondary modern school		Based on q.s. estimate on b.q. for phase I		Based on b.q.	Based on analysis of tender for phase I
	1	2	3	4	5	6
	cost plan whole scheme 52,000 ft. sup.	cost plan phase I 18,600 f.s.	excess cost incl. in phase I	estimate cost of phase I on b.q.	successful tender of phase I	cost plan phase II 33,400 f.s.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
preliminaries	4 9	4 9	1 10	7 7	7 0	3 4
foundations	4 0	2 6	2 3	4 10	5 2	5 0
drainage	2 3	2 3	1 3	3 6	4 1	0 9
struct. frame	13 11	16 0	—	16 6	16 8	12 9
roof deck	2 8	1 6	—	1 6	1 6½	3 11
floor deck	1 11	2 6	—	2 4	2 2	1 2
ext. walls	16 6	15 0	—	14 8	14 9½	15 9
int. walls	5 2	5 2	—	6 9	6 8	6 9
stairs and steps	2 4½	3 6	—	3 1	3 2	0 11
floor finishes	3 8	3 8	—	4 0	4 1	4 0
ceilings	3 5	3 5	—	3 9	3 10	3 11
furniture	7 1½	7 1½	3 0	10 0	9 11	5 4
plumbing	2 6	2 6	1 0	3 6	3 7½	3 0
heating	8 6	8 6	5 4	13 10	13 11	6 0
gas	0 4½	0 4½	0 4	0 8	0 8½	0 6
electrics	3 11	3 11	—	3 6	3 7	3 7
		82 7½ 15 0	15 0			
	82 11½	97 7½	100 0	100 10	76 8	

Fig. 6: summary of analyses of a Technical College that was to be built in two phases, the analysis being used to check incoming tenders.

(a) Skirtings which could be billed either with the walls to which they are fixed or with floor finishes.

(b) Heating ducts either in works below ground or in heating installation.

To take an example from the reference index:

#### STRUCTURAL FRAME:

Frame excluding infilling members for floors and roofs

Mortices in concrete for holding down bolts

Grouting up under base plates

Stanchion casings

Painting on steelwork

#### The presentation of the analysis

The first objective in preparing a cost plan is to establish an overall figure per foot super of floor area and a target figure for each of the elements. How accurately this can be done depends on the quality of the analysis being used and the adjustments for differences of plan shape, circumstances of the job, and so on. In the later stages of cost planning, when the sketch design is more advanced and the likely methods of construction are known, it will almost certainly be necessary to break down, for example, external walling into the relative areas of solid walling, fixed glazing, opening glazing, etc. We have found this process easier if analyses show not only the price per foot super of floor area, but the price per unit area of element and the price in £ s. d. The analysis then gives quantity, quality and cost, as shown in Fig. 4. Although the information given is more detailed, there is no extra work in abstracting, for all that is shown is needed in any case to arrive at a price per foot super of floor area. The great advantage of this method is that direct comparisons can be made between different types of construction without the need to "correct" for differing quantities by the use of ratios.

#### A Cost Planning Case History

The use of data given in cost analyses, to produce a cost plan in the design phase of a new project has already been described by James Nisbet (see the JOURNAL for May 10). In the following story of the building of a technical college, we illustrate further uses of cost planning and discuss other facets of the important part that cost planning and cost control play in the pre-planning of building projects.

#### Client's requirements

The requirements were, briefly, these:

(a) A total floor area of accommodation of 52,000 square feet.

(b) A maximum allowable cost of £221,000.

(c) Compact multi-storey planning to reduce circulation distances and to allow for limited site conditions.

These requirements allow a maximum cost of 85 shillings per square foot of floor area.

#### Procedure

A cost analysis was made of a secondary modern school which, broadly, incorporated the same form of construction and standard of finishes as was required for the technical college. If this analysis had not been generally comparable in all respects, it would have been necessary to build up rates per square foot of floor area for the components that differed from those in the analysis. The mechanics of transposing this secondary modern school analysis into the cost plan for the technical college, based upon the architect's outline sketch design are shown in tabular form in Fig. 5.

It will be seen from the summarized cost plan that this leaves two shillings to spare from the overall target figure of 85 shillings per square foot, and this is allowed for unfavourable market conditions, pricing risk, etc. While the working drawings were being completed, but before going out to tender a major decision was taken to alter the programming and to build the project in two phases. It became essential to have the science block commenced on the ground in April in order to have it available for use in the autumn term of 1957. Phase I was to be the one main four storey block incorporating the science laboratory, the main boiler house basement under, and the majority of the drainage scheme. It was also to contain a high proportion of the special equipment. Phase II, the remainder, was to be negotiated with the successful contractor and would probably be started during the finishing stages of Phase I. This change of programme confronted the architects with the following problems:

(a) It was necessary to know immediately, what total cost should be allowed for Phase I so that a tender could be accepted without even one week's delay.

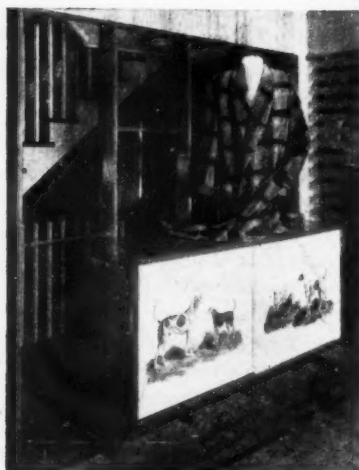
(b) Assuming the successful tender for Phase I was within the total sum allowed for it, could Phase I and the remainder of the scheme be built within the overall maximum cost of £221,000?

The answers to these problems were solved by breaking down the cost plan into two parts, one for each phase. (1) The cost plan for Phase I was based on the true areas of foundations, walls, etc., of the block in this phase, and on the same rates per square foot as were used in the original cost plan; but without adjustments,

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TYPE OF BUILDING	ARCHITECT	DATE PUBLISHED
<b>EDUCATIONAL</b>		
<i>Primary Schools</i>		
Sugar Hill, Newton Aycliffe, Co., Durham	Grenfell Baines and Hargreave's	29.9.55
<i>Secondary Schools</i>		
Barnet Lane, Barnet, Herts.	C. H. Aslin, County Architect	24.2.55
Remington Road, Parsons Cross, Sheffield	Basil Spence and Partners	24.3.55
Durrington on Sea, Worthing	Architects & Building Branch, MOE	4.8.55
Bellingham Road, Catford, S.E.6	J. L. Martin, LCC	25.8.55
Burleigh School, Wellfield Road, Hatfield	Architects' Co-Partnership	8.9.55
Broad Lane, Coventry	Architects' & Building Branch MOE	13.10.55
Herne Bay, Kent	Lyons Israel & Ellis	24.11.55
The Parks, Bargate Road, S. Belper, Derbyshire	Architects' & Building Branch MOE	15.12.55
<i>Technical Colleges</i>		
Miskin Road, Dartford, Kent	E. T. Ashley Smith, County Architect	28.4.55
<b>MEETING HALLS</b>		
Church Hall, Chessington, Surrey	Kenneth Wood	11.8.55
Community Hall, Roe Green, Hatfield	Lionel Brett & Kenneth Boyd	1.9.55
<b>FACTORIES</b>		
<i>Factories &amp; Offices (Hilmor), Industrial Area, Stevenage New Town</i>		
Standard Telephones Factory, Edinburgh Way, Harlow, Essex	Frederick Gibberd & Victor Hamnett	26.5.55
Peterlee Industrial Estate, Durham (Jeremiah Ambler Mill)	William Holford & Partners	15.9.55
Silentbloc Factory, Manor Royal, Crawley, Sussex	J. M. Austin Smith & Partner	6.10.55
Wallisdown Road, Poole, Dorset	Farmer & Dark	17.5.56
<b>HOUSING</b>		
<i>Flats</i>		
Bishop's Bridge Road, London, W.2	Tecton, Drake & Lasdun	3.3.55
Asnuburnham Road, Bedford	Max Lock & Partners	7.7.55
Osnaburgh Street, Regent's Park, N.W.1	Davies & Arnold	29.12.55
<i>Private Houses</i>		
West Mersea, Nr. Colchester, Essex	Richard Finch	30.6.55
Coillesdene Avenue, Eastfield, Joppa, Midlothian	Alan Reiaich	29.12.55
Charters Road, Sunningdale	J. Crabtree	14.7.55
<b>HOTELS</b>		
Hotel Leofric, Broadgate, Coventry	W. S. Hattrell & Partners	16.6.55
<b>HEALTH BUILDINGS</b>		
<i>Hospitals</i>		
Vale of Leven Hospital, Alexandria, Dumbartonshire	J. L. Gleave (John Keppie & Henderson & Gleave)	3.11.55
Admission Unit, Fairmile Hospital, Wallingford	Powell & Moya	19.4.56
<i>Health Centres</i>		
Gooseacre, Welwyn Garden City, Herts.	C. H. Aslin, County Architect	2.2.56
<b>MARKETS</b>		
Cattle Market, St. Oswald's Road, Gloucester	J. V. Wall, City Architect	3.5.56
<b>OFFICES</b>		
Wallisdown Road, Poole, Dorset	Farmer & Dark	10.3.55
Industrial Area, Stevenage New Town	D. P. Reay & L. Vincent	31.3.55
Edgware Road, Hendon, N.W.9	Walter & Eva Segal	28.7.55
<b>PUBLIC BUILDINGS</b>		
Police Headquarters, Talbot Road, Stretford, Manchester	G. Noel Hill, County Architect	5.5.55
<b>TRANSPORT BUILDINGS</b>		
Potters Bar Railway Station, Middlesex (Rebuilding)	H. H. Powell (B.R. Architect) & R. T. Walters	8.12.55
<b>LABORATORIES</b>		
Hostel & Laboratories, Institute of Horticulture, Pershore, Worcs.	Richard Sheppard & Partners	26.4.56

at this stage, for the value of basement and higher proportion of value of services and fittings which were necessarily to be carried out in this phase. (Fig. 6, col. 2).

(II) This involved estimating the value of the additional work, as in (I) above, to be included in Phase I, work which would have been absorbed in the cost of the whole scheme if built as one contract (Fig. 6, col. 3). To assess, accurately, the excess value of work included in Phase I, it was decided to price during the tendering period, a copy of the prepared bill of quantities sent out to tenderers for Phase I (Fig. 6, col. 4). Not only would the answers to the above problems be solved, but a good check would be made on the newly prepared cost plan for Phase I. Then, to assist the architect to complete Phase II, a cost plan was laid down from the analysis of the successful tender (Fig. 6, cols. 5 and 6). By this means, control of costs of the whole projects was possible.

The results are set out in Fig. 6. These analyses, if related back to the allowable cost show the following results:

<b>WHOLE SCHEME</b>	
52,000 sq. ft. at 85s. 0d. . . . .	£221,000
<b>PHASE I</b>	
18,600 sq. ft. at 100s. 10d. . . . .	£ 93,775
<b>PHASE II</b>	
334,000 sq. ft. at 76s. 8d. . . . .	£128,033
	<hr/>
	£221,808

Thus savings of only £800 have to be made to bring the whole contract into the allowable cost.

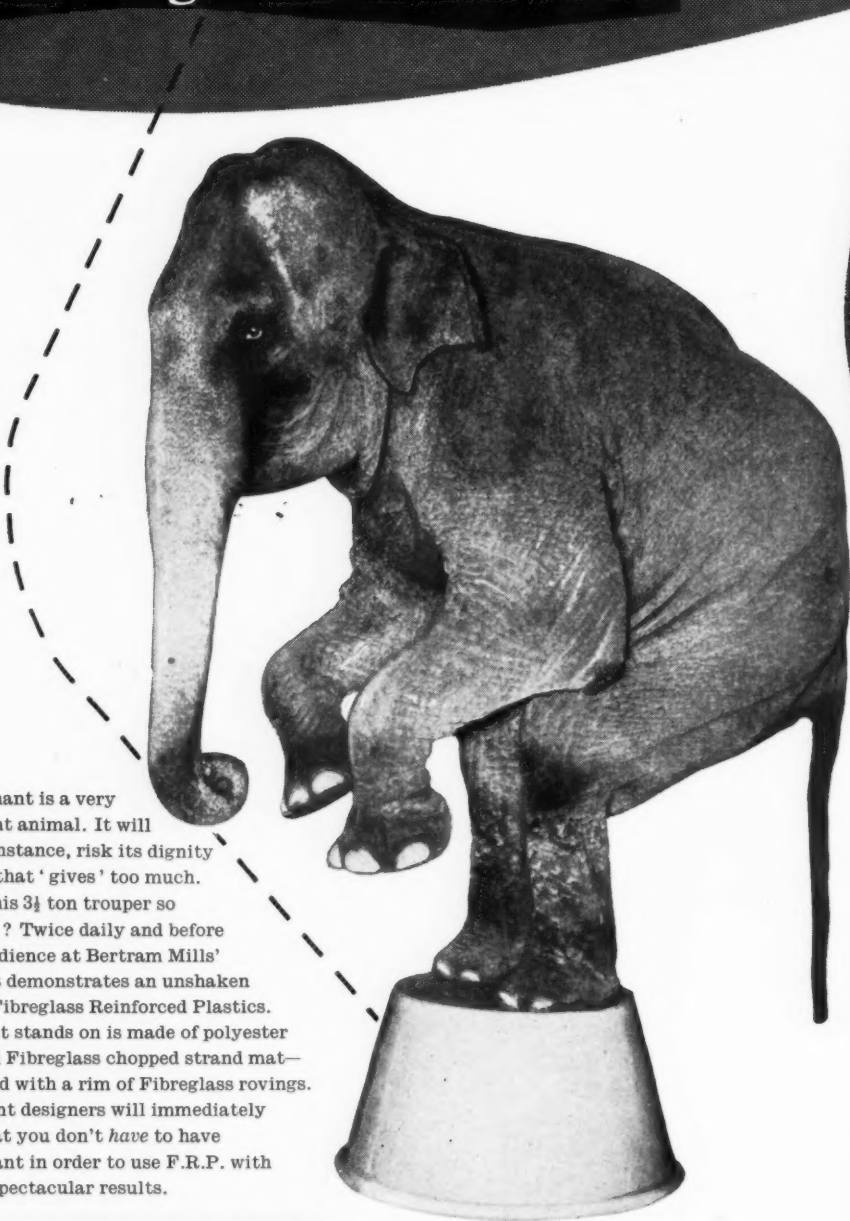
#### Conclusion

The cost plan for the whole job (Fig. 2, col. 1) was the final one laid down after the architect had made certain reductions in circulation areas on the evidence of too high a cost in the initial overall plan. The cost plan for Phase I only (to be built separately) followed directly from it. Our own pricing of the bill of quantities and that of the successful contractor have absorbed the 2s. allowed for pricing risk, and show slightly higher prices generally than the cost plan for Phase I, but this was to be expected since the contract time has been extended and continuity of operations broken by phasing of the building.

The total estimated final cost is likely to be quite accurate, based as it is upon the priced bills for Phase I and upon rates which will form the basis of the negotiated contract for the completion of the college. We were, therefore, certain that the estimated excess of £800 at this stage must be "planned out". Further, rising costs are likely to involve significant payments for increased cost in the later stages of the building of Phase II, so it was decided while making the £800 reduction, to allow for this as well. These reductions have been accomplished by varying the intended construction of a detached gymnasium block which at this stage had not been fully detailed, and before much architects' time had been spent upon it, without detriment to the scheme as a whole.

*Left, Fig. 7: a list of all the cost analyses published in the JOURNAL since February 24, 1955, when the first one appeared.*

## Moulding the future...



The elephant is a very intelligent animal. It will not, for instance, risk its dignity on a tub that 'gives' too much. Why is this 3½ ton trouser so confident? Twice daily and before a vast audience at Bertram Mills' Circus, it demonstrates an unshaken faith in Fibreglass Reinforced Plastics. The tub it stands on is made of polyester resin and Fibreglass chopped strand mat—reinforced with a rim of Fibreglass rovings. Intelligent designers will immediately grasp that you don't *have* to have an elephant in order to use F.R.P. with equally spectacular results.

**FIBREGLASS**  
TRADE MARK

the backbone of Reinforced Plastics



## MANCHESTER DINNER

"The Moscow university is a wonderful building," said Alderman T. Regan, the Lord Mayor of Manchester, with a downright Mancunian drawl, "but not my style; I like to see the modern flat architecture." This enlightened preference was presumably arrived at without any advice from Leonard Howitt, his City Architect, and President of the Manchester Society of Architects, because the Lord Mayor observed that "If there's any one official I've enjoyed the company of (when he's not talking architecture) it's your President." The occasion for these comments was the annual dinner of the Manchester Society last week.

Leonard Howitt, proposing the toast of the RIBA, described his early days—in about 1911—in the Manchester City Architect's department; the days when juniors wore "pot" and the seniors top hats, and "only the older men wore beards." Days of ample time, when the present tense atmosphere didn't exist, alcoholic refreshment at all times of the day, and structural method "still in line with the text books." Of current affairs, Howitt reminded his audience that "we must strive to practise our profession with such skill that no building developer can afford *not* to engage an architect." And as an example of the enlightened

policy of his City Corporation, he described the condition in the leasing of land at Wythenshawe that "every building must be designed, and its erection supervised, by a registered architect."

Haydn Smith, who proposed the toast to the City, to which the Lord Mayor replied, denounced the continued use of corinthian columns, the present spate of bad spec. housing, and the lack of training in the humanities for architectural students. He also thought that parts of Manchester, as a truly Victorian city, should be preserved, and referred to the proposals various speculators have put forward for the development of Piccadilly, the large open space in the centre of Manchester. For this cleared site the City Corporation have asked for bids based on a 99-year lease. It is rumoured, ASTRAGAL understands, that the largest offer is also, by good fortune, a reasonably contemporary scheme both in layout and detail.

## ARCHITECTS AND PLANNERS

ASTRAGAL recommends all readers to study the excerpt on page 570 from the RIBA Council minutes on architectural control under the '47 Planning Act. This refers to a report made by a joint committee composed of representatives of the Public Relations Committee, the Planning, and the Salaried Architects' Committees. An extract from this report was published recently in the JOURNAL. It is to be hoped that the whole of what promises to be an excellent report will be published soon in full for all the profession to study. This report would seem to be belated recognition of the fact that a large proportion of planning is affected by visual considerations, and here architects are the best equipped to serve. It is being slowly realized by architects that their avoidance of planning responsibilities during and after the '47 Act was a fatal mistake, and that they have much to do to recover the ground lost in selling out planning to other professions, untrained both in aesthetics and in the niceties of planning.

To those who deplore the possibility that architects with low aesthetic standards might have to undertake responsible planning positions, the answer is: first fill the posts, then, by education and propaganda, raise the standards.

To let other professions take key posts is a purely defeatist policy. At this moment public and governmental opinion is that planning is synonymous with restriction, and yet it doesn't prevent subtopia. There is obviously a great opportunity for a lively architectural profession to show that good planning is a liberating process, a positive thing which includes high aesthetic standards as a part of functional, economic planning. More power to the Joint Committee, and further, faster, action please.

BS 2717:1956

"Do you want me to replace the rhone round the piend?" said a Scottish voice in one of ASTRAGAL's uneasy dreams. "Yes," came the instantaneous reply, "of course". Woken up by this effort of sitemanship ASTRAGAL realised with relief that it was a dream, brought on by BSI's new *Glossary of Terms applicable to Roof Coverings* (BS.2717:1956 if you insist).

BSI, it seems, have undertaken "to provide a definitive list of terms for use by architects, surveyors, builders, manufacturers and suppliers" and they have made a beginning with roof coverings. The object of this glossary is not to provide a mine of curious information about local crafts, but to standardise (i.e. to cut terms down to a minimum): and this has been done fairly severely. The inclusion of the Scottish terms in this BSI Canon was by way of a graceful but very necessary exception.

Though he cannot but respect BSI's motives in this rubbing out of unnecessary terms, ASTRAGAL cannot help noticing that the result would be very different if BSI had had to deal not with craftsmen's words but with manufacturers' products. For then the compiler would have been ringed with the eager faces of manufacturers, each clamouring for this, that or the other obsolescent, undesirable object to be included.

## STANDARDS FOR FURNITURE

ASTRAGAL, often unjustly described as abusive, is delighted to be able to praise Jack Pritchard again. This indefatigable advocate—indeed client—of modern architecture and of Bauhaus principles of education, who had a hand in the recent *Architecture*





At the end of the last century, Luxfer specialised in the manufacture of all constructions through which daylight is admitted into a building, and in the middle of this century Luxfer still do.

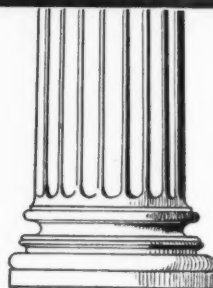
from Corinthian to...

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Hunstanton Secondary Modern School.*

*Architects :  
Peter & Alison Smithson, A.A.R.I.B.A  
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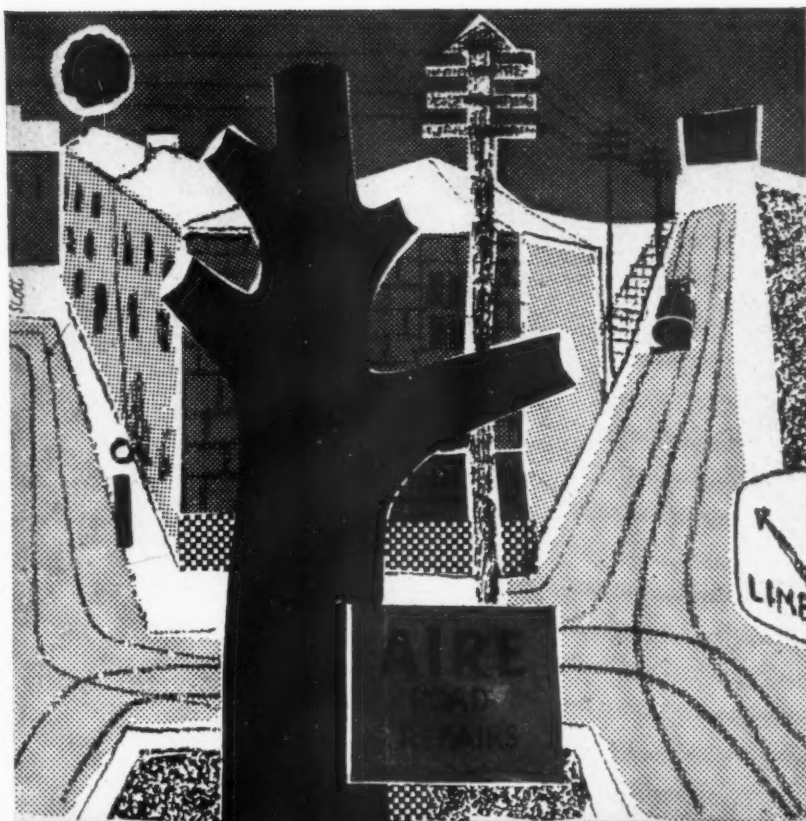
Club dinner for Walter Gropius the other day, recently took his Furniture Development Council team of research workers to the SIA to talk about their recent studies into furniture design. Their work has only been going a year or so, but its value to the furniture industry, and therefore indirectly to all of us, is going to be incalculable. The chief speaker was M. J. Merrick, who showed with examples some of the best methods of bracing a five-sided box—which is of what, in essence, a wardrobe or cabinet consists.

The talk was simple, logical, and succinctly given, and the effect on the largely non-structurally-minded audience favourable. The FDC is starting for the furniture industry what BRS has been doing for years for architects and builders. Its work merits, and it will no doubt receive in the JOURNAL, closer study and lengthier description than ASTRAGAL can afford to give.

#### STANDARDS FOR OFFICES

Although many have been discussing the correct income and status of assistant architects recently, no one seems to have mentioned the physical conditions under which they should work in terms of daylight factor-floor area, working surface area, number of secretaries and the like. The London Branch of the ABT discussed the problem the other day, but it was obviously so new to them that they were unable to get very far. However, later in the evening, when they discussed site offices for clerks of works very precise requirements emerged, mainly from T. M. McLaren. He was able to list very precisely, and, one fears, rather optimistically, everything the clerk of works needs in, and on, his hut in order that he can work efficiently: desk, plan chests, sloping bench, chairs, wash basin, washable floor covering, letter box, insulated walls and roof and so on.

The architects speaking were more concerned with office organisation. Harry Moncrieff described his co-operative society office, working in closed-shop harmony in Clapham. (A West-end address he considered expensive and totally unnecessary—particu-



THE TOURIST'S ROAD TO KILLARNEY  
SPECIAL ISSUE OF  
THE IRISH ARCHITECT AND  
CONTRACTOR

*The cover of the "Outrage" issue of "The Irish Architect and Contractor"*

larly as architects usually visit clients, and not vice-versa.) And Messrs. G. F. Putwain (British Railways) and A. A. Burton (Edmonton Borough) described the advantages of group working as against the pyramid office, and the troubles of staff and secretarial shortages. The latter obviously has a hard job. With two secretaries for 25 assistants, letters have to be written long-hand and long reports foresworn. The former made some extremely telling comments on inflexible establishment and grading systems, and had ideas which merit closer study on methods of ensuring that public and private offices do not differ too greatly in method and performance.

#### IRISH OUTRAGE

Ireland is a country one normally associates with empty roads, a minimum of mess, green fields and rustics painting rustics; compared with mid-

Staffordshire or the Southend by-Pass, is seems arcadian. That only shows how far we have sunk, because the *Irish Architect and Contractor* have fired off a broadside in their April issue in a guide to the road from Dublin to Killarney which takes in the same subjects as the route in the *Architectural Press* book, *Outrage*, and with the same results. With true Irish irony, it commemorates An Tostal, the annual tourist drive. The mess is revealed to be the same in Meath as it is in Middlesex, just more thinly spread:

ASTRAGAL begins to think that any large body of people is as incapable of visual sanity as it is of political sanity. But before he drinks his hemlock, congratulations to the IA & C for its bellow of rage.

ASTRAGAL



## RIBA

### Architects and Planners

The RIBA Council gave approval to a report submitted by the Joint Committee composed of representatives of the Public Relations Committee, the Town and Country Planning and Housing Committee and the Salaried and Official Architects' Committee. The report presented a review of the working of the Act in regard to the operation of aesthetic controls. The Joint Committee came to the conclusion that the inadequacy and unpopularity of the controls was only a symptom of the wider failure of the planning machine to justify to public opinion the admitted inconvenience of its restrictions by the conspicuous success of its results, either in the field of creative reconstruction, or in that of protection of the existing scene.

The following were mentioned as among the notable weaknesses of the existing system in these fields:

The Ministry of Housing and Local Government originally visualized as a constructive organization, has gradually been reduced to the rôle of administering the Planning and Housing Acts. Other departments of State have acquired too much power. The regional physical planning machinery has been similarly reduced. Local planning authorities have delegated their powers to officers without the appropriate qualifications to carry out the work. A number of activities whose effect on the landscape is decisive do not come under planning control, e.g., agriculture, public utilities, power stations, etc.

At the local planning level, the report asserts that the key to more effective handling of architectural and landscape problems is to get the right men into the right jobs. In this connection architects are the men properly qualified to be employed in a capacity which should permit creative work as well as the routine of development control.

The Council has given approval to the following statement of the Royal Institute's policy:—

(a) That all County Boroughs should employ an Architect as a Chief Officer and that he should also be responsible for Town Planning.

(b) That all large Boroughs and Urban Districts should employ an Architect, with local planning duties depending on the degree of delegation.

(c) That in cases where County Planning Officers are not Architects, County Architects should advise Planning Committees on development control in small towns and in rural districts and villages, and should be adequately staffed to enable them to deal

with broad problems of landscape as well as building.

The Council authorized the Joint Committee to continue with a study of methods whereby local authorities generally might be persuaded to put these principles into practice.

## LCC

### Nursery Education

Five hundred nursery school enthusiasts met for a one-day conference at the L.C.C. Headquarters, County Hall, last week. Delegates, including many education officers and chairmen of education committees were unanimous in calling for more nursery schools and classes.

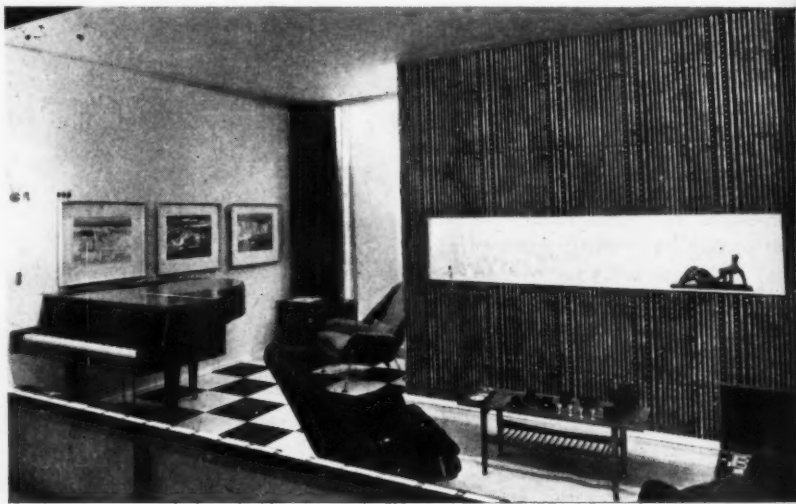
The best prospect now is in converting infant school classrooms which have become vacant with the passing of the exceptionally large post-war age groups into the junior schools. It was recommended at the Conference that such conversions should be carried out as minor works which do not require ministerial approval.

## MILAN

### British Exhibition

The United Kingdom national exhibit, organized by the Board of Trade at this year's International Samples Fair Milan (April 12-27), was devoted to a display of modern British design in consumer goods, chosen with special reference to European markets in general and the Italian market in particular. The display covered 2,600 square feet and included 470 products from more than 20 industries. The goods exhibited consisted of furniture and accessories for a living room, kitchen equipment, sports goods and toys. The theme of the display was "Living, Cooking and Living", and the designers—Neville Ward, ARIBA, FSIA and Alec Heath, FSIA, divided the exhibition into three sections, each corresponding to a division of the theme. Each contained an appropriate room-setting, with the remaining walls given over to displays of selected products. One of these was a half-sized photographic enlargement of an engraving of an Adam room, with modern pottery and glass shown in illuminated recesses, thus symbolizing the classical background of our design tradition.

Two of the British rooms at the Milan Fair. See note above.



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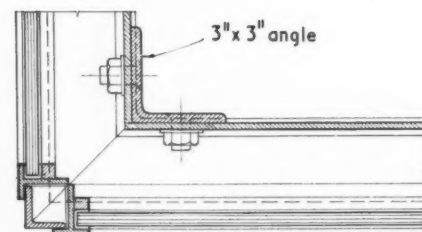
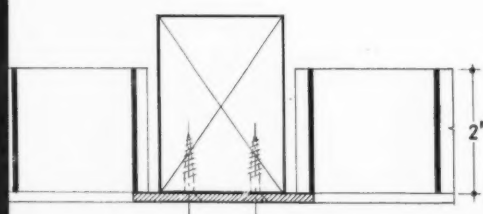
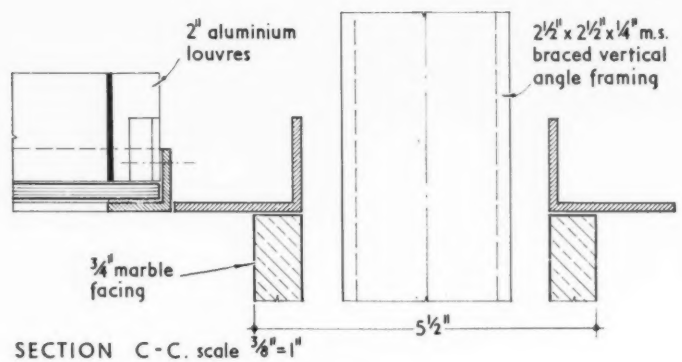
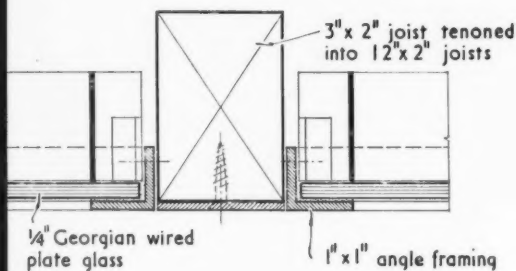
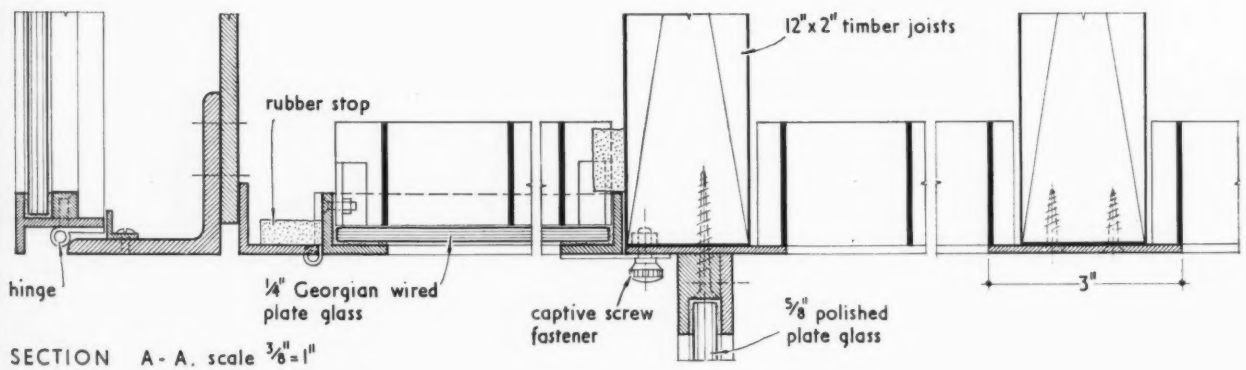
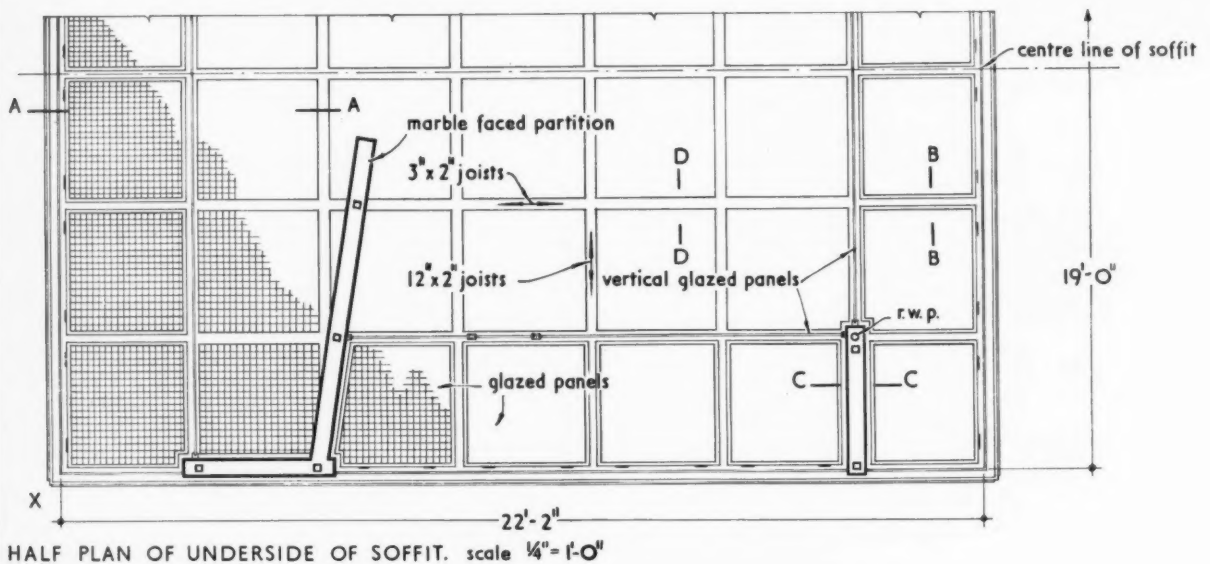
## ILLUMINATED CEILING: STATION KIOSK, LONDON, E.C.2

*H. H. Powell, chief architect, Civil Engineer's Dept., British Railways; R. T. Walters, principal assistant; J. Ward, architect-in-charge.*



*The structure of the ceiling-cum-roof of this kiosk consists of a raft built of 12 in. by 2 in. joists strengthened by 3 in. by 2 in. battens glued either side of the top edge (running the shorter span) and 3 in. by 2 in. joist fillers which are both cleated at the roof edge to a  $\frac{1}{4}$  in. m.s. plate; they are also cleated at the irregularly placed points of support to 2½ in. by 2½ in. m.s. box stanchions made up of two angles welded together. These stanchions are wholly concealed behind the marble slabs which form the visible piers. Angles bolted top and bottom of the  $\frac{1}{4}$  in. m.s. plate form a continuous "gallery" in which the lighting of the fascia is placed and the fascia itself is formed of an opening frame in which glass is fixed. The ceiling itself is formed of aluminium honeycomb louvres which in the enclosed parts of the kiosk rest directly on steel coverstrips screwed to the underside of the joists and in the outside parts rest on sheets of Georgian wired glass which themselves are supported in frames screwed to the joists.*

ILLUMINATED CEILING: STATION KIOSK, LONDON, E.C.2

*H. H. Powell, chief architect, Civil Engineer's Dept., British Railways; R. T. Walters, principal assistant; J. Ward, architect in-charge.*

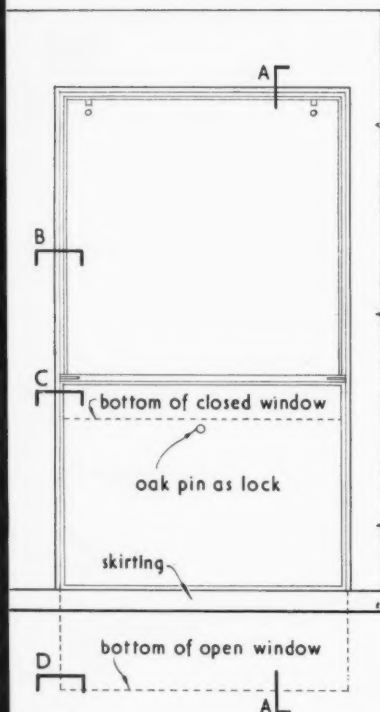
## WINDOW: HOUSE IN JERSEY

*John Breakwell, architect*

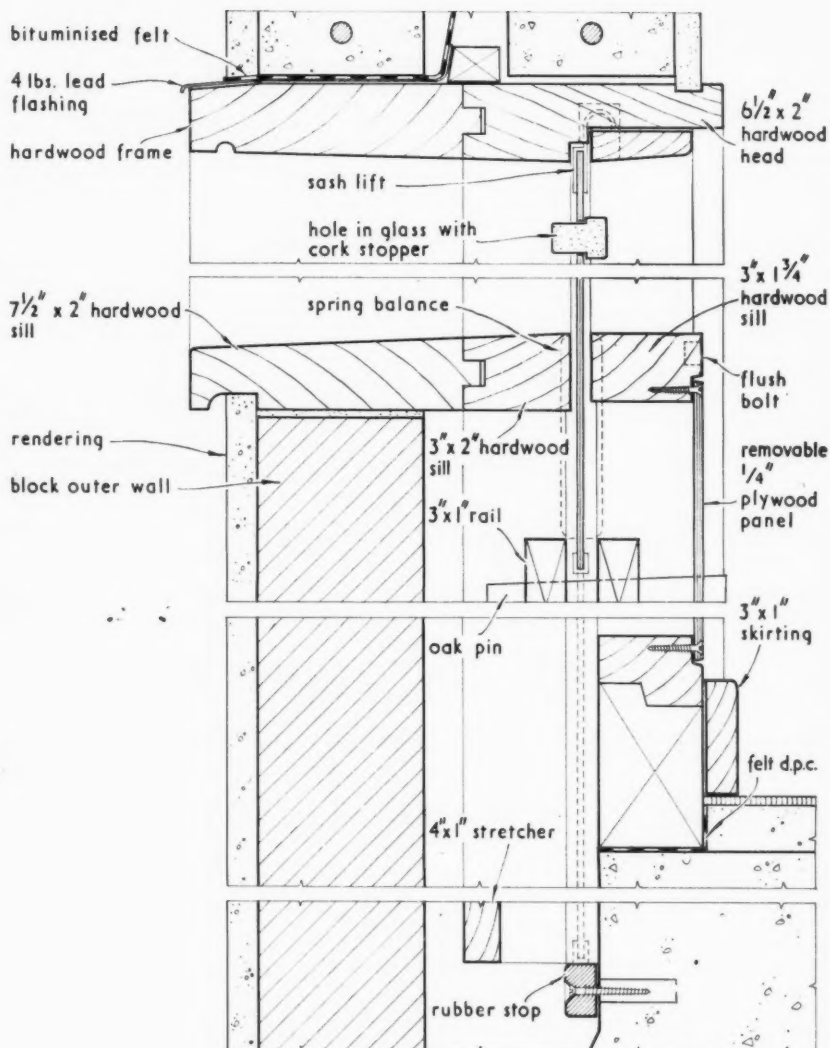
*The vertical sliding sash is raised and lowered on balance tapes which are concealed below sill level and runs in grooves lined with felt and impregnated paraffin wax. The small amount of damp which finds its way between pane and sill falls to the foot of the cavity and escapes through the outer skin. The window is locked by means of an oak pin which passes through the panel beneath the internal sill. The fixed panel cannot be seen in the photograph as it is covered by a pinoleum blind which has not been included in the drawings.*

WINDOW: HOUSE IN JERSEY

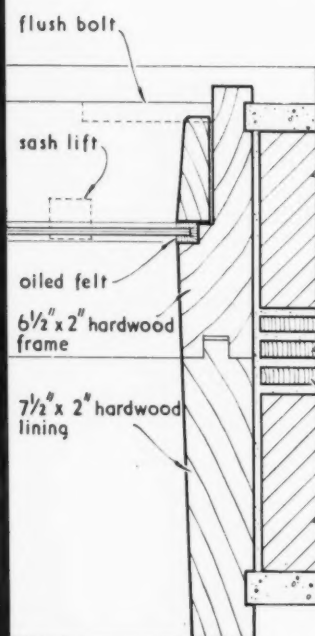
John Breakwell, architect



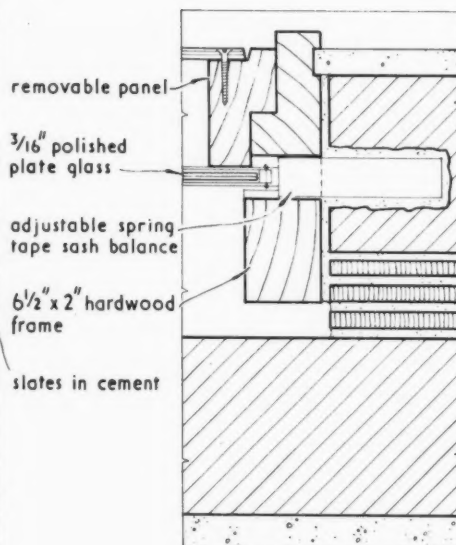
INTERNAL ELEVATION OF TYPICAL WINDOW.  
scale  $\frac{1}{2}'' = 1'-0''$



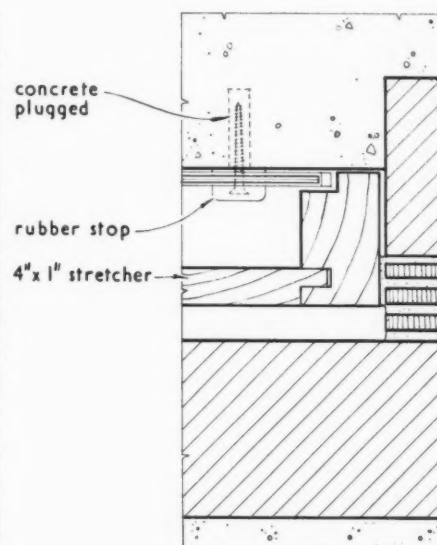
SECTION A-A.



PLAN AT 'B'.



PLAN AT 'C'.



PLAN AT 'D'.

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## Correction

We regret that owing to a printing error the name "Ekco" was incorrectly spelt in the Ekco Ensign advertisement on April 12.

## Announcements

### PROFESSIONAL

C. F. Manning, A.R.I.B.A., has been appointed Staff Architect to Boxgrove Houses Ltd., 10, Duke Street, Manchester Square, W.1., where he will be glad to receive trade literature.

Leslie J. Newton, F.R.I.C.S., Chartered Quantity Surveyor, is removing his practice from 29, Finsbury Square, E.C.2, and opening new offices at 9/10, Staple Inn, Holborn, W.C.1.

Davis, Brody, Juster and Wisniewski, Architects, announce that they have moved their offices to 220, East Twenty Third Street, N.Y. 10. (Tel.: MUrray Hill 3-4382.)

### TRADE

Mellor Bromley & Co. Ltd., Barkby Road, Leicester (member of the Bentley Group of Companies), have appointed P. Ford as North Western area representative of their Air Conditioning Division, in place of W. Witham.

The Truscon Travelling Scholarship for the study of reinforced concrete work offered by The Trussed Concrete Steel Company, Limited, details of which were given in the JOURNAL of March 1, has been awarded to Graham Winteringham, DIP.ARCH., A.R.I.B.A., of Birmingham. Mr. Winteringham will be accompanied by B. W. Cooper, of the company's staff, to whom a similar scholarship has been awarded.

T. McMillan, M.INST.C.E., Joint Assistant Managing Director of Tarmac Ltd., has been elected Chairman of the Council of the Federation of Civil Engineering Contractors.

The London associated company of the Coseley Engineering Company Limited, has moved to 41/46 Piccadilly, W.1. (Tel: REGent 4924/5/6). The directors are J. E. Ellis and Lt. Col. D. A. Collier.

### GENERAL

The National Physical Laboratory, at Teddington, Middlesex, is holding an Open Day on Friday, May 25. Admission is by ticket only and a limited number of invitations for the afternoon period 1.30-5.30 p.m. are still available on application to the Director.

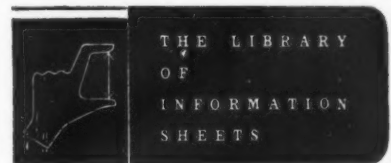
The following RIBA representatives have been appointed:—Code of Practice Committee on Roof Construction for Houses: C. M. Vine; Code of Practice Committee on Flues for larger Appliances in Buildings: F. H. Heaven; Conference on Installation of Domestic Solid Fuel Appliances, convened by the Coal Utilization Council: Clifford Culpin and John Pinckheard; RIBA Architecture Bronze Medal: Birmingham and Five Counties Architectural Association: RIBA Representative to serve on Jury to consider Award: Leonard C. Howitt, president, Manchester Society of Architects; Joint Committee of Professional Institutions to negotiate Remuneration of part-time Lecturers for Local Education Authorities: J. Kenneth Hicks.

The RIBA council has approved a recommendation that the RIBA Award for Distinction in Town Planning should be conferred upon Dr. J. Leslie Martin and Peter Shephard.

The RIBA secretary has reported to the council that the jury entrusted with considering the award of the RIBA Architecture Bronze Medal in the area of the York and

East Yorkshire Architectural Society for the three-year period ending December 31, 1955, have made their award in favour of the Cecil Cinema, Kingston-upon-Hull, designed by J. P. Taylor in association with A. K. Bray and J. R. Hobson. Formal approval has been given to this award by the council.

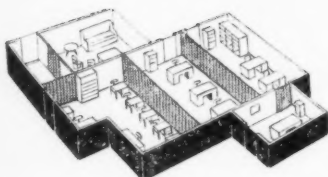
The RIBA council has considered a recommendation from the Practice Committee resulting from a proposal originally put forward by the Joint Consultative Committee of Architects, Quantity Surveyors and Builders. This proposal was to the effect that a set of explanatory drawings should be supplied with bills of quantities at the time of tendering. The point was made that these would result in closer tendering since it gave tenderers a better opportunity to assess the requirements of the work than could be obtained from a cursory examination of drawings in the architect's office. The council gave approval to this proposal in principle but in so doing emphasized that the drawings concerned were solely for the purpose of explaining the nature of the scheme and would not form part of the contract in any sense.



15.B5 The Editors regret that the half-tone block of six photographs on the face of this Sheet was printed upside down. The type numbers under the photographs should therefore read as follows, left to right: F, E, D, C, B, A.

# LONG DIVISION

WITH BOLTON LEATHERCLOTH COVERED FOLDING PARTITIONS

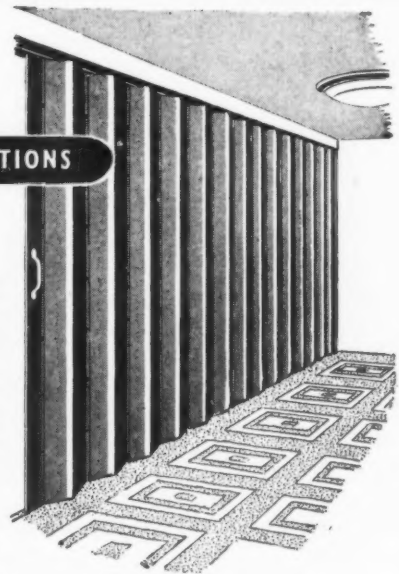


The photograph (below) shows a typical application of Bolton "Superfold" collapsible partitions in a modern school.



The Bolton "Superfold" collapsible partition, leathercloth covered, is the complete answer to the present-day problem of using limited space to the best advantage. Light and easy to handle, the "Superfold" partition consists of a sturdy collapsible metal frame finished on both sides with an attractive washable leathercloth covering, available in a variety of shades. The flexibility of "Superfold" movable walls transforms rooms into apartments and classrooms into assembly halls, and the subdivision of offices, hospital wards, department stores, dining halls, clubs, hotel rooms and restaurants—to name but a few applications—can be accomplished in a matter of seconds.

We should like to tell you more about the "Superfold". A leaflet in full colour giving further details will gladly be sent on request—just ask for "Superfold" Leaflet A.J.3.

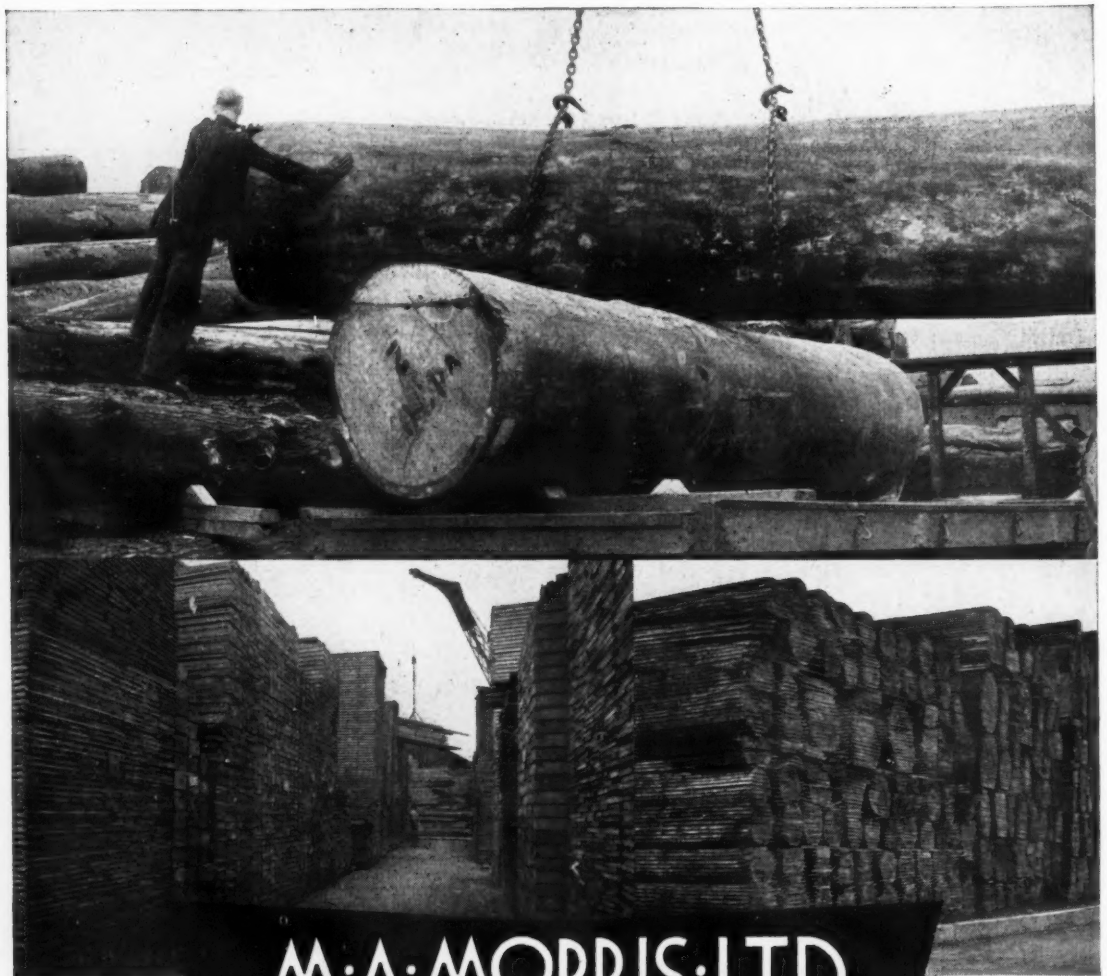


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## FILE THIS WEEK

This cost analysis of the school at Crawley, which was published in our issue for April 5, should be cut out and filed with the original article.

## COST ANALYSIS

Note: gross cost = net cost plus works

		Element	Cost per sq. ft. s. d.	Element	Cost per sq. ft. s. d.
Number of form entries	1				
Number of places	280	Preliminaries and insurance	3 6	Wall finishes	1 0
Floor area (square feet)	11,975	Contingencies	1 2	Built in fittings	0 10
Number of sq. ft. per place	42.8	Work below ground floor level	5 6	Ironmongery	0 7½
Net cost	£40,040	External walls and facings	5 3	Plumbing (external)	1 5½
Net cost per place	£142.57	Internal load bearing walls	1 2	" (internal)	2 9
External works	£5,100	Internal partitions	0 3	Sanitary fittings	0 10
Gross cost	£45,140	Frame	3 7	Gas installation	0 2
Gross cost per place	£161.12	Upper floor construction and staircase	1 7½	Electric "	3 3
Tender date	July, 1953	Roof	7 0	Heating "	6 1
		Roof lights	0 6½	Ventilation	—
		Floor finishes	3 8	Drainage	2 5½
		Ceiling finishes	1 8	Glazing	0 7
		Windows and doors (external)	3 9	Decorations	2 8½
		Doors (internal)	0 9	Playgrounds	2 9
		W.C. doors and partitions	0 6	Paved areas	1 4½
		Cloakroom fittings	0 1*		
				Total cost per square foot	£3 6 10½

\* Not including mobile cloak fittings. Mobile cloak fittings in 6 classrooms and sanctuary furniture designed by architect. These items not included in cost figures above.

## SITE AND PLAN ANALYSIS

Site accommodation	Area in acres	Per cent. of total	Plan accommodation	Area in sq. ft.	Per cent. of total	Area per place
Building	0.28	7.3	Hall	2,230	18.70	8.15
Playing fields	2.22	58.8	Store	357	2.99	1.25
Hard playing areas	0.42	11.3	General and practical classrooms	5,170	43.27	18.40
School garden	—	—	Dining	812	6.87	2.85
Planting near building	0.5	13.4	Pupils' storage	355	2.96	1.27
Roads	0.21	5.9	Sanitary accommodation	639	5.35	2.28
Paths, paving	0.12	3.3	Staff rooms	617	5.15	2.20
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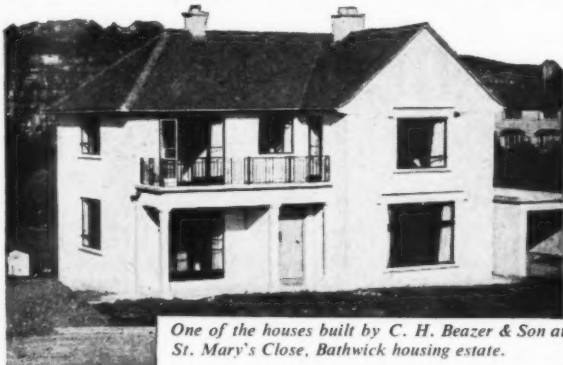
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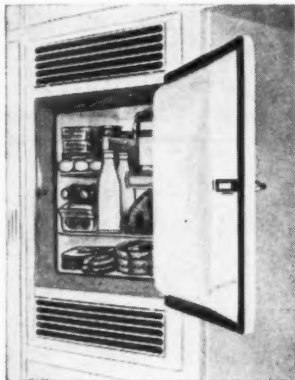


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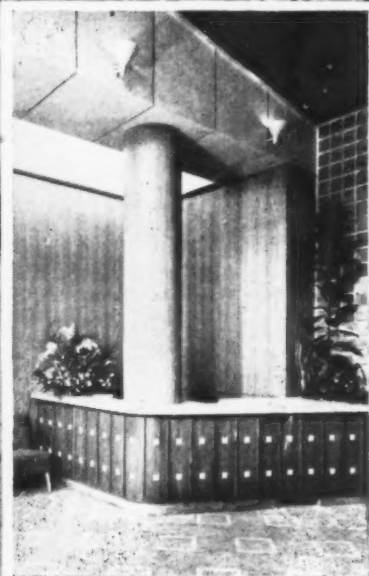
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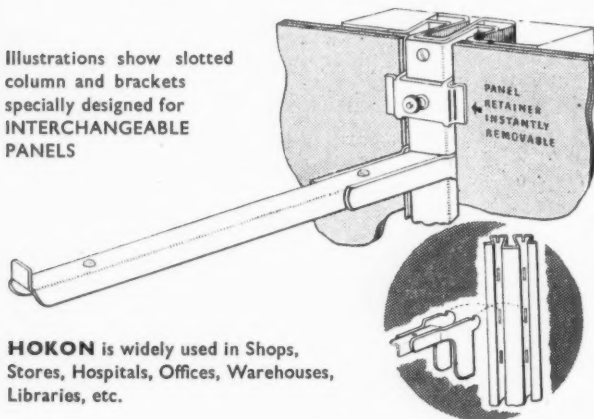
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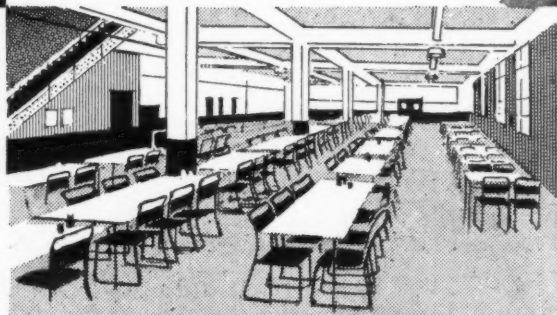
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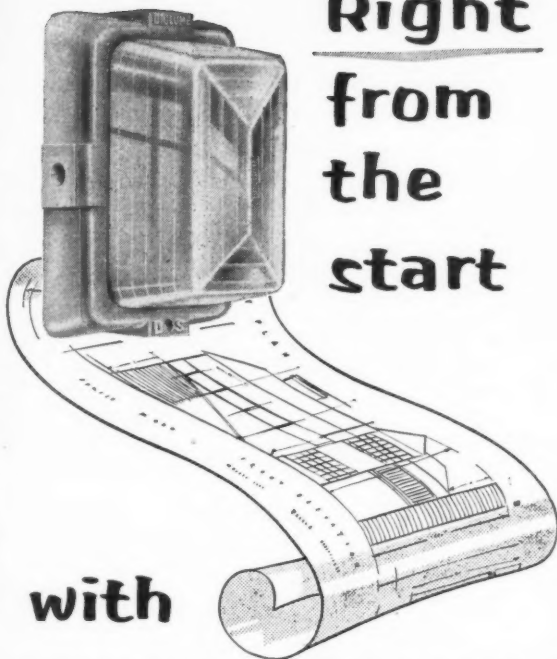


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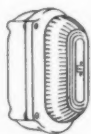


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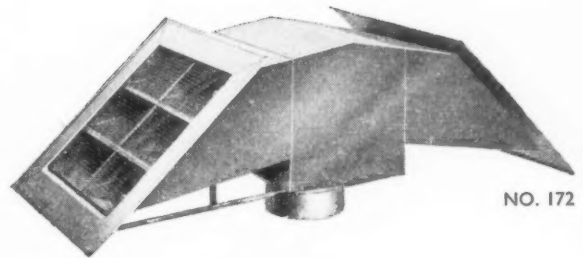
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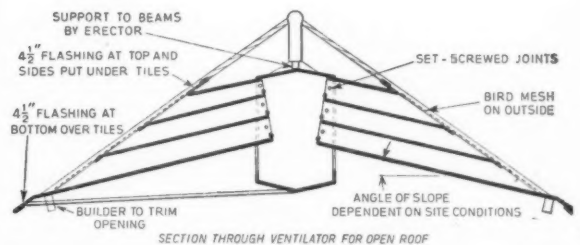


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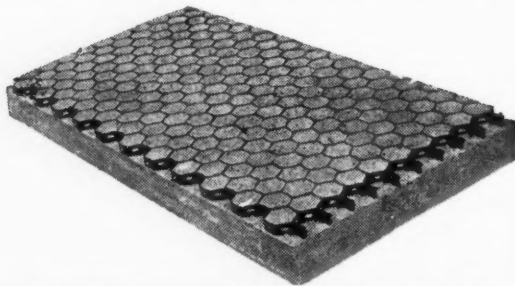
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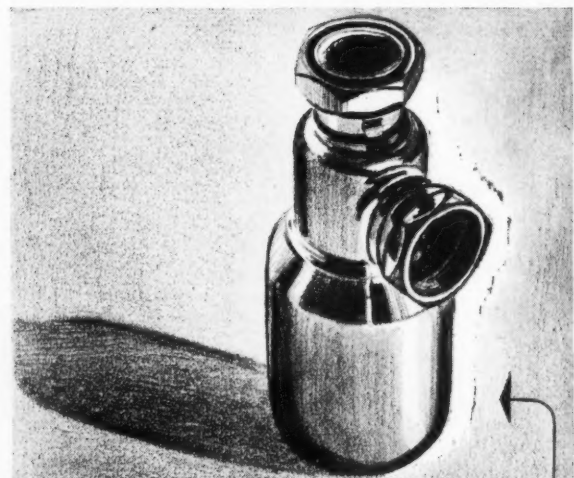
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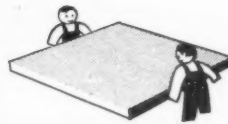
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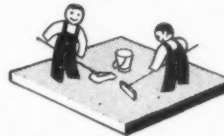
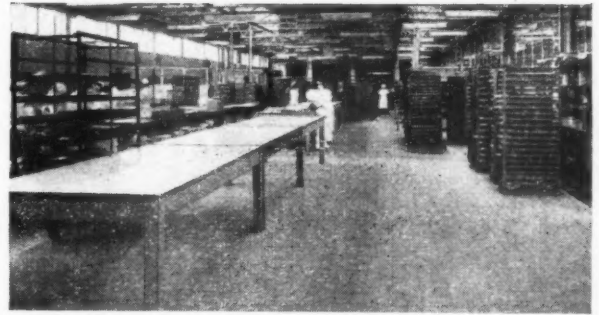
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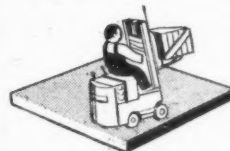
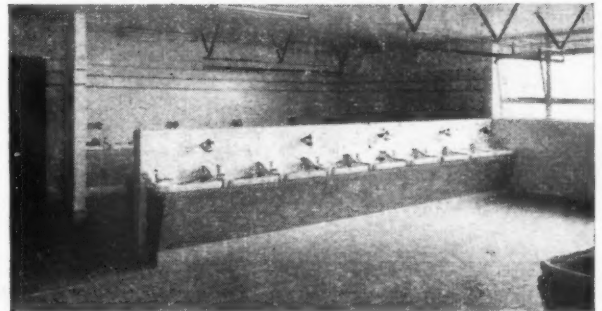
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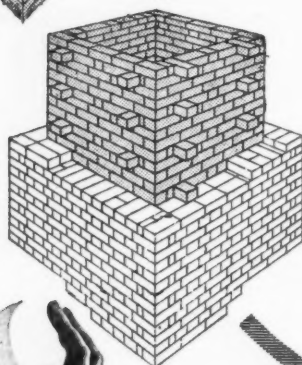
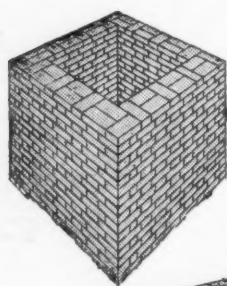
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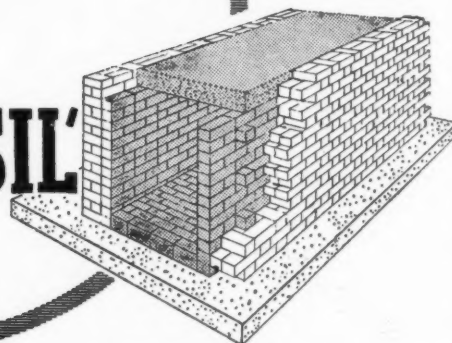
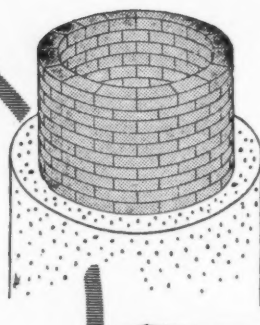




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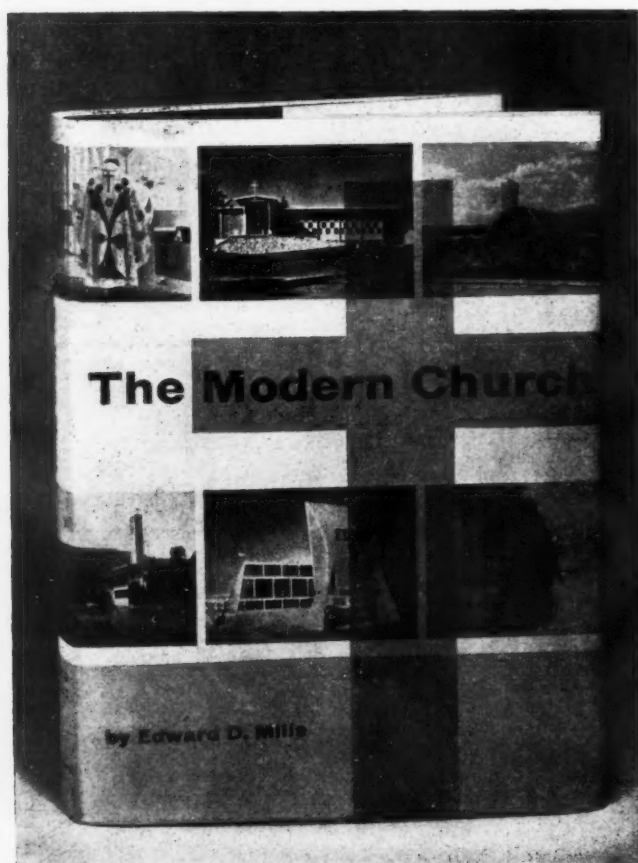
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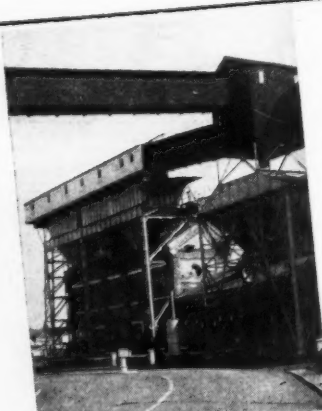
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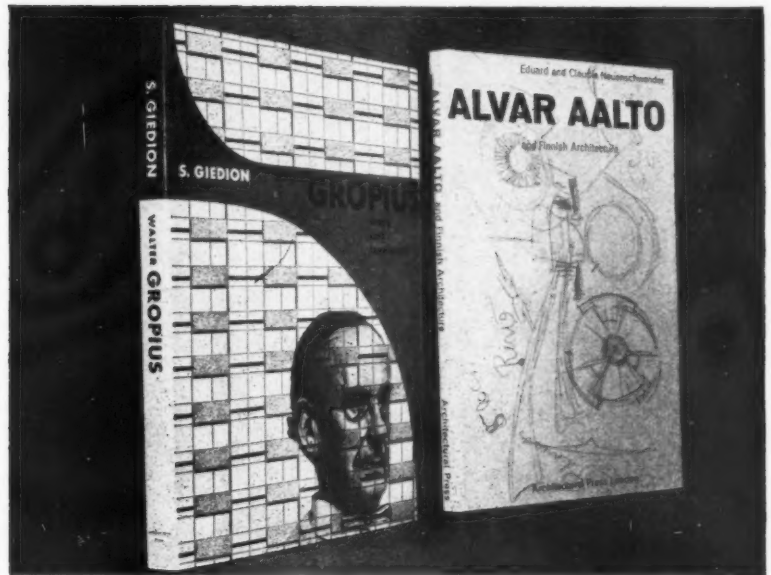
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THE MOST IMPORTANT BOOK yet written about one of the greatest living architects, by one of the most widely-read writers on architects and architecture. The author of *Space, Time and Architecture* pays tribute to the creative genius of a world-renowned pioneer of the modern movement, his friend Walter Gropius—who, in January, 1954, was awarded the first São Paulo Prize for Architecture in recognition of his work as an innovator and educator during the past half-century. Dr. S. Giedion, at the instigation of the Matarazzo Foundation of São Paulo (donor of the prize) writes a detailed, authoritative study of Gropius' development as designer, teacher and leader and illustrates his account with over 300 photographs and plans of buildings and projects for which Gropius has been responsible, either alone or—practising one of the principles he has so vigorously preached for many years—as a leading member of a creative team of designers.

Chapters on Gropius' background, heritage and personality are followed by appreciations from two of his greatest contemporaries, Mies van der Rohe and Le Corbusier. The 11 chapters on his life and work include Gropius and the Bauhaus, Buildings for Education, Buildings for Industry, the Modern Theatre, Prefabricated Houses, Development of the Slab Apartment Block, the Changing Structure of the City. Then follow over 140 pages of illustrations of Gropius' work, by far the most comprehensive collection ever published. The book ends with a complete list of Gropius' works, bibliographies of all his books and other writings, and of books and critical articles about him and his work: and an index. Size 10½ ins. by 7½ ins. 248 pages with over 300 line and halftone illustrations, and a full list of Gropius' works and projects, bibliographies of works by and about Gropius. Price 42s. net, postage 1s. 5d.

THIS WORK by Eduard and Claudia Neuenschwander gives an insight into a frontier of Western civilization where some of the most interesting works of the modern movement have been created, and where today an entirely new architectural generation, inspired by Alvar Aalto, receives professional training and stimulation probably unequalled elsewhere. First place in Finnish society belongs not to the manager or the politician but to the intellectual and the creative genius. And the architect shaping the environment and many of the accessories of modern living is held in particularly high esteem. Without many words, through careful choice of photographs, sketches and detailed plans, the authors clearly show how Aalto's creative power impresses itself on the landscape and way of life of Finland, and how this creative power organically evolves from the country's peculiar regional characteristics.

Eduard Neuenschwander worked in Alvar Aalto's office for three decisive years, decisive because during these years Aalto became absorbed with the design of large-scale projects. Aalto had, of course, worked on large-scale projects before: but now realization immediately followed the drafting stage. Aalto almost deliberately destroyed his sketches and plans. Even photographs of his major works are extremely rare. This book—possible only because Neuenschwander, in daily working contact with Aalto, succeeded in collecting and preserving original material—shows the great works and projects completed from 1950 to 1952 as well as numerous earlier buildings, and is thus a unique document and a standard work for every architect. Text and captions are printed in English, French and German simultaneously. Size 10½ ins. by 7½ ins., 192 pages with approximately 300 photographs, plans and detailed layouts. Price 50s. net, postage 1s. 3d.

## WALTER GROPIUS: WORK AND TEAM- WORK

by Dr. S. Giedion

## ALVAR AALTO AND FINNISH ARCHITECTURE

by E. and C. Neuenschwander

THE ARCHITECTURAL PRESS, 9-13, QUEEN ANNE'S GATE, LONDON, SW1

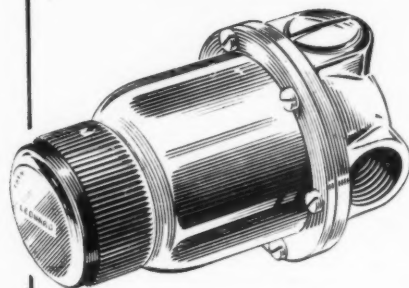


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A shower is the best bath in the world. The skin glows in the surge and the rush of the pin-point spray. The bather screws up her face and squeaks with delight under the swift attack.

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## CLASSIFIED ADVERTISEMENTS

Advertisements should be addressed to the Advt. Manager, "The Architects' Journal," 9, 11 and 13, Queen Anne's Gate, Westminster, S.W.1, and should reach there by first post on Friday morning for inclusion in the following Thursday's paper.

Replies to Box Numbers should be addressed care of "The Architects' Journal," at the address given above.

## Public and Official Announcements

25s. per inch; each additional line, 2s.

LONDON COUNTY COUNCIL  
QUALIFYING EXAMINATION FOR THE  
OFFICE OF DISTRICT SURVEYOR

An examination for certificates of proficiency to perform the duties of District Surveyor will be conducted in London in the week commencing 15th October, 1956. The minimum age limit for candidates is 25.

Possession of this certificate is necessary for appointment to positions as District Surveyor (Salary scales £1,500 to £2,900 a year) or as Assistant District Surveyor (Salary scale £1,184 to £1,353 + allowance of £56 a year).

Subsequent examinations will be held annually. Apply to The Architect to the Council (A.R.E.D./C.T.B.), County Hall, Westminster Bridge, S.E.1, for application forms and further particulars. (690) 9666

HAYES AND HARLINGTON URBAN  
DISTRICT COUNCIL

Applications are invited for—  
(a) ARCHITECTURAL ASSISTANTS (PERMANENT) (two vacancies), Grade A.P.T. II, i.e., £595-£675 per annum. (b) SENIOR ARCHITECTURAL ASSISTANT (TEMPORARY), Grade A.P.T. IV, i.e., £710-£885 per annum, plus London "weighting" in each instance, 21-25 years £20 per annum, 26 years and over £30 per annum. Candidates for (a) must have passed the R.I.B.A. Inter. Exam., good experience of housing work with local authority. Housing accommodation will be made available for one of these two appointments if necessary. (b) Must be a Registered Architect, have good general experience in design and construction in relation to Municipal housing and other works, and capable of supervising large building contracts. The Council is unable to provide housing accommodation for this appointment. 5-day week. Further particulars and form of application obtainable from the undersigned, which, when completed, must be returned as soon as possible. GEORGE HOOPER, Clerk and Solicitor.

Town Hall, Hayes, Middlesex. 9932

NEWCASTLE REGIONAL HOSPITAL BOARD  
SPECIAL AREA COMMITTEE FOR  
CUMBERLAND AND NORTH WESTMORLAND

Applications are invited for the following permanent (superannuable) appointments in the Carlisle Area-office of the Regional Architect's Department in connection with the development of the Hospital Service in Cumberland and North Westmorland.

(a) ASSISTANT ARCHITECT, Grade £640 × £25 (4) × £35 (2) to £930 per annum.  
(b) ARCHITECTURAL ASSISTANT, Grade £480 × £20 (7) × £25 (2) to £570 per annum.  
Commencing salary will depend on the applicant's age and amount of practical experience. Applicants for post (a) should be Registered Architects, and applicants for post (b) should have passed the Intermediate Examination of the Royal Institute of British Architects and be studying for the Final Examination.

Applications stating age, qualifications, past and present appointments, present salary and details of experience and training, together with the names of three referees (of whom at least two should be architects) should be forwarded to the Clerk of the Special Area Committee, 72 Warwick Road, Carlisle, within 14 days of the appearance of this advertisement.

W. J. BALL, Clerk of the Special Area Committee.

72 Warwick Road, Carlisle. 9994

## AMENDED ADVERTISEMENT

WORCESTERSHIRE COUNTY COUNCIL  
COUNTY ARCHITECT'S DEPARTMENT

Applications are invited for the following positions on the permanent staff:—

(1) SENIOR ASSISTANT ARCHITECT, Grade A.P.T. VI (£880-£1,080). This position is for a group leader in charge of a section of the drawing office, mainly engaged in carrying out major capital projects on new schools. Candidates should be qualified Architects, with good experience in the design and construction of contemporary schools.

(2) ARCHITECTURAL ASSISTANT, Grade A.P.T. III (£640-£765). Preference will be given to candidates who have passed the Intermediate Examination.

(3) ARCHITECTURAL ASSISTANT, Grade A.P.T. II (£595-£675).

(4) ENGINEERING ASSISTANT (HEATING AND VENTILATING), Grade A.P.T. IV (£710-£885). Applicants should have had training and experience in the design, specification, estimates and supervision of contracts for heating and allied service in schools and other large public buildings, and of maintenance of equipment.

Application forms may be obtained from L. C. Lomas, F.R.I.B.A., County Architect, 14, Castle Street, Worcester. (3292). 1084

## COUNTY BOROUGH OF SOUTHAMPTON

requires under N.J.C. conditions of service:—  
(a) ASSISTANT ARCHITECT, Special Scale, £690-£840. Applicants should have passed Parts I and II of the R.I.B.A. final examination (or equivalent) and have had at least 5 years' experience, including period spent on theoretical training, and preferably have had experience in Municipal housing estate development and administration of contracts.

(b) ARCHITECTURAL ASSISTANT, Grade A.P.T. II (£595-£675). Must have passed the Intermediate examination of the R.I.B.A. or its equivalent at one of the recognised schools of architecture, and have had subsequent experience, preferably in local government housing.

Applicants for appointment (a) needing assistance in obtaining housing accommodation should state requirements.  
Apply with copies of two testimonials to the Borough Engineer and Surveyor, Civic Centre, Southampton. 1032

HORNCHURCH URBAN DISTRICT COUNCIL  
APPOINTMENT OF ARCHITECTURAL  
ASSISTANT

Applications are invited for the permanent appointment of Architectural Assistant in the Department of the Engineer and Surveyor at a salary in accordance with Grade III (£640-£765) of the National Scales.

Candidates should have good architectural experience and experience in the development of schemes of a major character will be an advantage.

The appointment will be terminable by one month's notice on either side; subject to a medical examination, and the Conditions of Service of the National Joint Council for Local Authorities A.P.T. and Clerical Services.

Applications on forms provided by the undersigned must be received in envelopes endorsed "Architectural Assistant" not later than 2nd June 1956.

Applicants should state whether they require housing accommodation.

P. L. COX,

Clerk of the Council.

Council Offices,  
Billet Lane,  
Hornchurch.  
8th May, 1956. 1051

BOROUGH OF TAUNTON  
ARCHITECT'S DEPARTMENT

Applications are invited for the post of ARCHITECTURAL ASSISTANT, Salary (Grade 1—Special Grade) £595-£675, £690-£840, in the Borough Housing Architect's Department.

The appointment will be subject to the National Scheme of Conditions of Service and the provisions of the Local Government Superannuation Acts.

Applications, together with the names of two referees should be submitted to C. Bacon, F.R.I.B.A., Borough Housing Architect, Flook House, Station Road, Taunton, by not later than 28th May, 1956.

Consideration may be given to the provision of Housing accommodation if required.

K. A. HORNE,

Town Clerk.

Municipal Buildings,  
Taunton. 1977

## GOVERNMENT OF NORTHERN IRELAND

## ASSISTANT ARCHITECT

Applications are invited for the unestablished post of Assistant Architect Class II in the Works Directorate, Ministry of Finance.

Salary scale, which attracts pay supplement of amounts between £91 and £160 per annum is £675 × £25-£750 × £30-£960 × £40-£1,000. Minimum of scale is linked to entry at age 26 plus or minus one increment for each year above or below that age. Maximum entry point £900 plus pay supplement of £113.

Candidates must be Registered Architects by examination, and must have had at least two years' experience in an Architect's Office in the preparation of working drawings for new buildings.

Preference will be given to a suitably qualified candidate who served in H.M. Forces during the 1914-18 or 1939-45 wars, provided the Ministry is satisfied that such a candidate is, or within a reasonable time will be, able to discharge the duties of the post efficiently.

Application forms may be obtained from the Director of Establishments, Ministry of Finance, Stormont, Belfast, to whom they must be returned, together with copies of two recent testimonials, so as to reach him not later than 25th June, 1956. 1078

## COUNTY BOROUGH OF BURNLEY

Applications are invited for the following appointments in the Borough Engineer and Surveyor's Department:—

(a) SENIOR ARCHITECTURAL ASSISTANT, Grade IV (£710-£885).

(b) QUANTITY SURVEYING ASSISTANTS, Grade II (£595-£675).

Applicants for appointment (a) must hold appropriate qualifications, and have had considerable experience in Municipal building projects (including educational buildings).

Applicants for appointment (b) should have a sound knowledge of building construction, and experience in the preparation of quantities and measurement of work is essential.

Forms of application may be obtained from the Borough Engineer, 22/24, Nicholas Street, Burnley, and should be returned to him not later than Saturday, 9th June, 1956.

C. V. THORNLEY,

Town Clerk.

1089

## CARDIGANSHIRE COUNTY COUNCIL

Applications are invited for the post of PRINCIPAL ASSISTANT ARCHITECT (A.P.T. Grade VI, £880-£1,080) in the County Architect's Department, County Hall, Aberystwyth.

Applicants should be Members of the R.I.B.A. with good experience in the design and construction of modern buildings.

The successful person will be in charge of the Drawing Office and will have general responsibility for the department in the absence of the County Architect and his Deputy.

Forms of application and further details obtainable from the County Architect.

Applications to be returned to the undersigned by not later than 2nd June, 1956.

J. E. R. CARSON,

Clerk of the Cardiganshire County Council.

Seyddfa'r Sir,  
Marine Terrace,  
Aberystwyth, Cards. 1081

CITY OF STOKE-ON-TRENT  
CITY ARCHITECT'S DEPARTMENT

Applications are invited for (a) ASSISTANT ARCHITECT Special Scale £690-£840, (b) ASSISTANT QUANTITY SURVEYORS Grade A.P.T. V £795-£970, Grade A.P.T. IV £710-£885, Grade A.P.T. III £640-£765, Grade A.P.T. II £595-£675.

Housing Accommodation may be made available for senior appointments.

Applications stating which post and grade applied for and giving full details of education, training and experience to J. R. Piggett, T.D., F.R.I.B.A., City Architect, Kingsway, Stoke-on-Trent, by Friday, 8th June, 1956.

HARRY TAYLOR, Town Clerk. 1135

## GOLD COAST HOUSING CORPORATION

Applications are invited for the vacancies of EXECUTIVE ENGINEER. Conditions: Appointments are on contract terms for two tours of 18-24 months, with a possible extension of contract by mutual agreement. The consolidated salary scale is £1,130 × £50-£1,530; £1,600 × £60-£2,020. The point of entry will be determined according to qualifications and experience. A gratuity of £37 10s. for each satisfactory three months' period of service will be paid on completion of contract. Furnished quarters will be provided on rental for candidates recruited from overseas, and an outfit allowance of £50 will be paid to those candidates for appointment at a salary below £1,530. For those selected at a salary over £1,530 the outfit allowance will be £30. Earned leave will be at the rate of 7 days for each completed month of service. Passages will be provided for the officer, wife, and up to three children under the age of 13 years.

Qualifications: Candidates should have reached their 30th birthday; must be in possession of a good Civil Engineering degree or recognised diploma, and must have at least 2 years' practical experience in Civil Engineering works, or must have passed Parts I and II of the examination of the Institution of Civil Engineers.

Associates of the Royal Institution of British Architects are eligible to apply. Building Surveyors, having the qualification of A.R.I.C.S. (Buildings), are also eligible to apply. Experience on site development and building construction in the tropics and a knowledge of works costing would be an advantage. Candidates should be able to supervise and direct works under their control.

Duties: Duties include co-operation in the planning and layout of housing estates, site development, including supervision of provision of water and electric power supply, design and construction of houses. Candidates must assist in the preparation of estimates.

Candidates should apply to the Secretary for Recruitment, Gold Coast Office, 13, Belgrave Square, London, S.W.1, for a form of application. 1125

NORTH-WEST METROPOLITAN REGIONAL  
HOSPITAL BOARD

Applications are invited from BUILDING SURVEYORS for the following two vacancies on the established staff of the Architect's Department:—

(a) Preparation of working drawings and specifications, under supervision, of works of a minor character.

(b) Management of contracts, specification writing for specialist and sub-contract work.

Preference will be given to candidates holding the Intermediate Examination of the R.I.C.S.

The Board operates a scheme of financial assistance to students preparing for professional examinations.

Salary within scale £480-£670, plus £20-£30 London weighting. Improved scale awaited.

Apply, stating age, qualifications and experience, with names of two referees, to Secretary, North-West Metropolitan Regional Hospital Board, 11a, Portland Place, W.1, by 9th June. 1119

## CRAWLEY DEVELOPMENT CORPORATION

require ASSISTANT ARCHITECTS, Grade IV (£710-£885 p.a.).

Applicants should be fully qualified Architects. One post offers considerable scope for a qualified LANDSCAPE ARCHITECT, or would be suitable for an Architect wishing to gain experience in landscape work.

Contributory superannuation.

Apply on forms from Chief Architect (Vacancy), Broadfield, Crawley, Sussex, by 15th June, 1956.

C. A. C. TURNER,

Chief Executive. 1104



STAFFORDSHIRE COUNTY COUNCIL  
EDUCATION ARCHITECT'S DEPARTMENT  
TECHNICAL ASSISTANT (SITES)

Applications are invited for the appointment of Technical Assistant (Sites) in the Education Architect's Department on Grade A.P.T. III or IV (£640-£765 or £710-£885 p.a.). Applicants should be experienced in the acquisition of property for local authority purposes and have passed the Final Examination of the Royal Institution of Chartered Surveyors or hold an equivalent qualification.

Forms of application from the County Education Architect, Green Hall, Lichfield Road, Stafford, to be returned completed, 10 days from date of this advertisement.

T. H. EVANS,

Clerk of the County Council.

1130

CAMBRIDGESHIRE COUNTY COUNCIL  
COUNTY ARCHITECT'S DEPARTMENT

Applications are invited for the following appointments:—

(a) TWO QUANTITY SURVEYORS, Grade IV (£710×£35-£885).

(b) ONE ASSISTANT QUANTITY SURVEYOR, Grade II (£595×£20-£675).

(c) ONE ENGINEER, Grade IV/V (£710×£35-£970).

(d) ONE ARCHITECTURAL ASSISTANT, Grade IV (£710×£35-£885).

(e) TWO ARCHITECTURAL ASSISTANTS, Mis. Div. III (£445×£15×£20-£510).

(a) Applicants should have had considerable experience in all duties of quantity surveying, including site measurement and final accounts.

(b) Applicants should have had experience in abstracting, billing and site measurement. Preference will be given to applicants who have passed the Intermediate stage of the R.I.C.S.

(c) Applicants should be Associate Members of the Institute of Heating and Ventilating Engineers, or hold equivalent qualifications, and should have had experience in preparing designs, specifications, and also the supervision of contracts for heating, ventilating and lighting services in large public buildings.

(d) Applicants should be Registered Architects and able to develop working drawings from sketch plans.

(e) Applicants should be neat and expeditious draughtsmen and be able to prepare working drawings from tracings.

The appointments are subject to the Local Government Superannuation Acts, 1937 to 1953, the National Scheme of Conditions of Service, a satisfactory medical examination, and termination by one month's notice on either side.

Applications, stating age, present salary, present and previous appointments, details of training and experience, together with one recent testimonial and the names and addresses of two referees, should be submitted to the undersigned not later than 8th June, 1956.

CHARLES PHYTHIAN,

Clerk of the County Council.

Shire Hall, Cambridge.

May, 1956.

1144

COUNTY COUNCIL OF NORTHUMBERLAND  
COUNTY ARCHITECT'S DEPARTMENT

Applications are invited from qualified Architects having some previous office experience for post of ASSISTANT ARCHITECT on the staff of this Department, to work on an extensive and interesting Education programme. Salary within A.P.T. Grade IV (£710), rising to a maximum of £885 per annum, with prospects of promotion to higher grades within the office in due course.

The appointments will be subject to the provisions of the Local Government Superannuation Acts, and the successful candidates will be required to pass a medical examination.

Applications in writing, stating age, qualifications, and previous experience, together with the names and addresses of two referees to whom reference can be made, to be forwarded to the County Architect, County Hall, Newcastle-upon-Tyne, 1, not later than Tuesday, 5th June, 1956.

1147

COUNTY BOROUGH OF DERBY  
BOROUGH ARCHITECT'S DEPARTMENT  
ARCHITECTURAL STAFF:

(a) A.P.T., Grade IV (£710-£885 per annum).

(b) A.P.T., Grade III (£640-£765 per annum).

(c) A.P.T., Grade II (£595-£675 per annum).

(d) A.P.T., Grade I (£530-£610 per annum).

(e) Higher General Division (£180-£500 per annum).

QUANTITY SURVEYING STAFF:

(f) A.P.T., Grade V (£795-£970 per annum).

(g) A.P.T., Grade III (£640-£765 per annum).

(h) A.P.T., Grade II (£595-£675 per annum).

(i) Higher General Division (£180-£500 per annum).

Commencing salary will be according to qualifications and experience.

Permanent superannuable appointments, subject to one month's notice and to medical examination.

National Conditions of Service.

Applicants must state for which post they are applying.

Further particulars and application forms obtainable from, and to be returned to, The Borough Architect, The Council House, Corporation Street, Derby, not later than Monday, 4th June, 1956.

G. H. EMLYN JONES,

Town Clerk.

14th May, 1956.

1092

UNIVERSITY OF DURHAM  
KING'S COLLEGE, NEWCASTLE-UPON-TYNE

The Council of King's College invite applications for the post of ASSISTANT BURSAR (ESTATES). Candidates should be qualified and experienced in estate and property management, including the supervision of maintenance staff and the implementation of works schemes in conjunction with Architects and Clerks of Works.

The starting salary will be determined at a suitable point on the scale £650×£50-£1,350, in accordance with the qualifications and experience of the successful candidate. Superannuation benefits and family allowance will be payable. It is intended that the appointee shall take up duty on or about 1st August, 1956.

Further particulars may be obtained from the undersigned, to whom applications (twelve copies) should be addressed so as to reach him not later than 9th June, 1956.

G. R. HANSON,

Registrar of King's College.

1143

COUNTY BOROUGH OF PRESTON  
APPOINTMENT OF SENIOR ARCHITECTURAL ASSISTANT (EDUCATION)

Applications are invited for the following appointment on the staff of the Borough Engineer and Surveyor's Department:—

SENIOR ARCHITECTURAL ASSISTANT (EDUCATION), Grade A.P.T. V (£795-£970).

Applicants must be Registered Architects, and preferably Corporate Members of the Royal Institute of British Architects, with good experience in design and control of contracts; experience in design of schools will be an advantage.

The form of application, obtainable from my office, should be completed and returned to me not later than the 8th June, 1956.

W. E. E. LOCKLEY,

Town Clerk.

Municipal Building, Preston.

1113

WARWICKSHIRE COUNTY COUNCIL  
COUNTY ARCHITECT'S DEPARTMENT

Applications are invited for the following appointments:—

(a) SENIOR ASSISTANT ARCHITECTS, Grade A.P.T. V (£795-£970).

Applicants must be competent designers, having a knowledge of modern methods of construction, and be capable of handling large building projects from sketch plan stage to completion.

(b) ARCHITECTS, Grade A.P.T. IV (£710-£885). Applicants must be competent designers, having a good knowledge of construction and be capable of handling medium sized contracts.

(c) ASSISTANT ARCHITECTS (scale £590-£840). The successful applicants will work in teams on large projects, but opportunity will be given to men with enthusiasm and ability to design and carry out smaller projects under the Group Architect.

(d) CLERKS OF WORKS. Applications are invited for the appointment of Clerks of Works to supervise the erection of new school buildings in various parts of the County. Salary £14 per week.

The commencing salaries can be within the grades according to the ability and experience. The appointments, except (d), are on the established staff, and subject to the Scheme and Conditions of Service of the National Joint Council for Local Authorities. All appointments are subject to the Local Government Superannuation Acts, 1937-1953. Successful candidates will be required to pass a medical examination.

The Council is unable to offer successful candidates housing accommodation.

Applications are to be on forms which can be obtained from G. R. BARNESLEY, F.R.I.B.A., County Architect, Shire Hall, Warwick.

L. EDGAR STEPHENS,

Clerk of the Council.

Shire Hall, Warwick.

May, 1956.

1086

CITY OF LIVERPOOL  
ARCHITECTURAL AND HOUSING  
DEPARTMENT

Applications are invited for the appointment of TECHNICAL ASSISTANT (PERSPECTIVES). Salary, £595-£675 per annum (A.P.T. II). Applicants should have experience in preparing perspective drawings, illustrating (preferably Architectural subjects) in line and colour, and the preparation of drawings for publicity purposes.

Experience in lettering, setting out, etc., is also desirable. Applications will be considered from commercial artists, or persons with architectural training. Application forms obtainable from the City Architect and Director of Housing, Blackburn Chambers, Dale Street, Liverpool, 2, must be returned to him by 9th June, 1956.

The appointment is superannuable and subject to the Standing Orders of the City Council. Canvassing disqualifies.

THOMAS ALKER,

Town Clerk.

Municipal Buildings, Liverpool, 2. (J.4368)

1087

SURREY COUNTY COUNCIL  
Applications invited for the following appointments:—

ASSISTANT ARCHITECT, GRADE III (£640×£25-£765 p.a. plus London Allowance). Pref. given applicants who have passed Inter. R.I.B.A.

ARCHITECTURAL ASSISTANT, GRADE I (£530×£20-£610 p.a. plus L.A.).

Full details and present salary with three copy testimonials to County Architect, County Hall, Kingston, as soon as possible.

1028

## THE UNITED LEEDS HOSPITALS

The Board of Governors invite applications for the post of SUPERINTENDENT ENGINEER to these Teaching Hospitals. Candidates should have high professional qualifications.

The duties consist of the planning and supervision of the construction or alteration by contractors of all types of hospital departments, and responsibility for the maintenance work and engineering services of the Group (1,046 beds). Salary scale £1,060 by £40 (5) by £50 (1) to £1,310 p.a., subject to superannuation regulations and the conditions of service laid down by Whitley Council for the Health Services.

Applications, stating age, qualifications, details of previous appointments (with dates), should be forwarded, together with the names of three referees, to the undersigned not later than 4th June, 1956.

J. ARNOLD TUNSTALL,

Secretary to the Board.

General Infirmary, Leeds, 1.

1140

## COUNTY BOROUGH OF DUDLEY

## ARCHITECTURAL ASSISTANT

Applications are invited for the above appointment. Salary £530 to £610.

The post is superannuable, and the successful applicant will be required to pass a medical examination.

Applications, giving age, qualifications and experience, with names and addresses of two referees, must be received by me not later than Monday, 18th June, 1956.

P. D. WADSWORTH,

Town Clerk.

The Council House, Dudley.

16th May, 1956.

1133

## STAFFORDSHIRE COUNTY COUNCIL

## EDUCATION COMMITTEE

Applications are invited for STRUCTURAL DRAUGHTSMEN to assist the Senior Structural Engineer (salary within the range of £560-£725 per annum), according to qualifications and experience, with at least two years' experience in reinforced concrete and/or structural steel.

Forms of Application from the County Education Architect, "Green Hall," Lichfield Road, Stafford, to be returned not later than 10 days after the date of this advertisement.

T. H. EVANS,

Clerk of the County Council.

1100

## LONDON ELECTRICITY BOARD

## ARCHITECTURAL ASSISTANT

Applications are invited for the above position in the Architect's Section of the Chief Engineer's Department in Central London.

Applicants should be studying for or have passed the Intermediate Examination of the R.I.B.A., be capable draughtsmen, and have had several years' experience as an Architect's office.

The post is graded under Schedule "D" of the National Joint Board agreement as Grade V (£735 to £840 per annum), inclusive of London allowance.

Application forms from Personnel Officer, 46, New Broad Street, London, E.C.2. Please quote ref. PER 2156/A.

1083

## CITY OF NOTTINGHAM

## CLERK OF WORKS

(£560-£670 per annum)

Applications are invited from men experienced in the supervision of the construction of buildings and/or the maintenance of public buildings for the above position in the City Engineer's Department.

Salary according to experience, in Grade Misc. V (£560-£620), or Misc. VI (£605-£670).

The post is superannuable.

Application forms from R. M. Finch, O.B.E., M.I.C.E., City Engineer and Surveyor, Guildhall, Nottingham, returnable by 9th June.

1085

## SURREY COUNTY COUNCIL

## COUNTY ARCHITECT'S DEPARTMENT

Applications invited for permanent appointments for ARCHITECTS and QUANTITY SURVEYORS A.P.T. IV-VI. Minimum £710, maximum £1,080, plus £30 London Allowance per annum.

Salary range of appointment and commencing salary will depend on experience and qualifications.

Applications with two testimonials to County Architect, County Hall, Kingston-on-Thames, as soon as possible.

1139

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9156

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The Corporation do not bind themselves to accept the lowest or any tender.

E. J. COPE-BROWN,  
Town Clerk.

Town Hall, Ealing, W.5. 1117

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Applications, stating age, experience, qualifications and salary required, to G. S. Hay, A.R.I.B.A., Chief Architect, Co-operative Wholesale Society, Ltd., 1, Balloon Street, Manchester, 4. 3871

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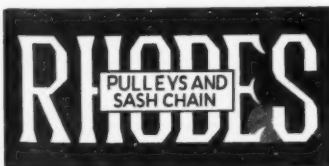
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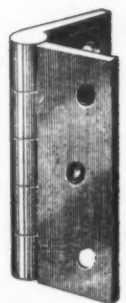
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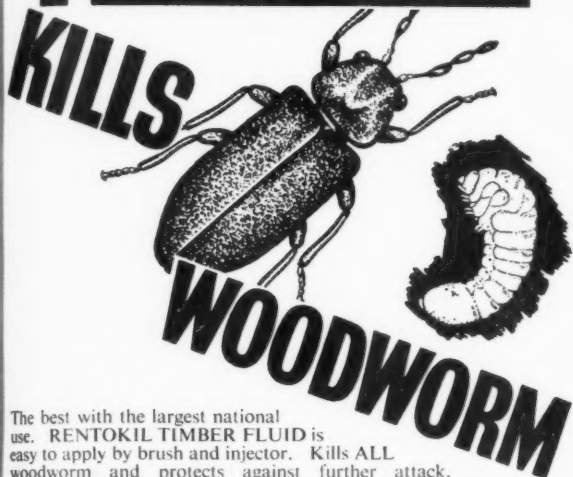
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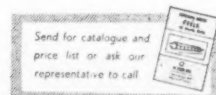
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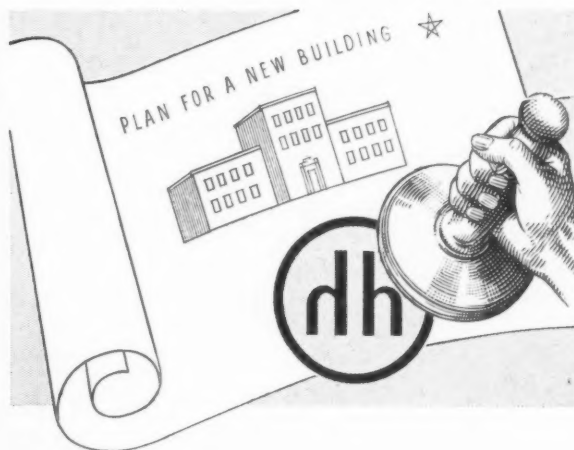
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